

ON *CARABIDÆ* FROM WEST AUSTRALIA, SENT BY  
MR. A. M. LEA (WITH DESCRIPTIONS OF NEW  
GENERA AND SPECIES, SYNOPTIC  
TABLES, &c.).

BY THOMAS G. SLOANE.

Mr. A. M. Lea, of the Bureau of Agriculture, West Australia, has sent to me, for inspection and report, a large number of insects of the family Carabidæ from different parts of the Colony of West Australia, and the following paper comprises the results of my examination of the collections he has forwarded. The Carabidæ treated of consist of collections from two widely separated districts, viz., those from South-West Australia and the neighbourhood of Champion Bay, mostly collected by Mr. Lea; and those from the East Kimberley District (localities Wyndham on Cambridge Gulf, Behn River and Upper Ord River), collected by Mr. Richard Helms.

In order to assist the elucidation of the facts connected with the distribution of the Carabidæ in Australia, I have, in some cases, brought together and tabulated the genera of tribes that have hitherto been scattered in a somewhat haphazard manner, thereby enabling more accurate comparisons to be made between the faunas of different parts of the continent.

The arrangement of the tribes adopted by Dr. G. H. Horn in his classification of the Carabidæ\* has been followed in the main, but the *Harpaline unisetosæ* have been placed before the *Harpaline bisetosæ* in the belief that they represent the older type and therefore should be placed first. The tribe Bembidiini, placed by Horn between the Nomiini and the Feronini, seems to me in a wrong position. The type specimens of all the new species have been returned to Mr. Lea.

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\* Trans. Am. Ent. Soc. 1881, ix.

## Family CARABIDÆ.

## Subfamily CARABINÆ.

## Tribe SCARITINI.

## Group Scaritides.

## Genus GEOSCAPTUS.

1. *G. sp.?* *Hab.*—Upper Ord River (Helms). Two examples of a species intermediate between *G. levissimus*, Chaud., and *G. cacus*, MacI., and also differing from *G. crassus*, Sl. I cannot determine it, but am not prepared to describe it as new.

## Group Carenides.

## Genus SCARAPHITES.

2. *SC. LATICOLLIS*, MacI.; Mast. Cat. Sp. 458. *Hab.*—Upper Ord River (Helms).

3. *SC. SILENUS*, Westw.; l.c. Sp. 466. *Hab.*—Swan River, Donnybrook (Lea).

4. *SC. LUCIDUS*, Chaud.; l.c. Sp. 461. *Hab.*—Bunbury (Lea).

5. *SC. sp.?* *Hab.*—Mount Barker (Lea, one immature example).

## Genus CARENUM.

6. *C. OCCIDENTALE*, Sl., P.L.S.N.S.W. 1897, xxii. p. 195. *Hab.*—Geraldton and Mullewa (Lea).

7. *C. LEVIPENNE*, MacI.; Mast. Cat. Sp. 374. *Hab.*—Mount Barker (Lea and Helms).

## Genus EUTOMA.

8. *E. VIOLACEUM*, MacI.; l.c. Sp. 337. *Hab.*—Darling Range Mount Barker (Lea).

## Genus CARENIDIUM.

9. *C. LEAI*, Sl., P.L.S.N.S.W. 1897, xxii. p. 223. *Hab.*—Geraldton and Mullewa (Lea).

Group **Clivinides.**Genus **CLIVINA.**

10. *C. CRIBROSA*, Putz.; Mast. Cat. Sp. 506. *Hab.*—Beverley (Lea).

11. *C. CORONATA*, Putz.; l.c. Sp. 505. *Hab.*—Mount Barker (Lea).

12. *C. DORSALIS*, Blkb.; l.c. Supp. Sp. 7393. *Hab.*—Beverley (Lea).

13. *C. OLLIFFI*, Sl., P.L.S.N.S.W. 1896, xxi. p. 185. *Hab.*—Beverley, Geraldton (Lea).

14. *C. ANGUSTIPES*, Putz.; Mast. Cat. Sp. 498. *Hab.*—Swan River, Newcastle, Donnybrook, Pinjarrah (Lea).

Subfamily **HARPALINÆ.**Division **Harpalinæ unisetosæ.**Tribe **BROSCINI.**Genus **GNATHOXYS.**

15. *GN. GRANULARIS*, Westw.; l.c. Sp. 476. *Hab.*—Swan River, Geraldton and Mullewa (Lea); Dongara (Ward).

16. *GN. INSIGNITUS*, MacL.; l.c. Sp. 478. *Hab.*—Mount Barker (Lea).

17. *GN. CRASSIPES*, n.sp.

Oval, robust, convex; head large, convex, clypeus deeply fossulate on each side and longitudinally sulcate in middle; prothorax convex, broader than long, rounded on sides, sharply narrowed to base, bordered on base; elytra short, punctate near sides, granulate on apical declivity, disc with rows of punctate depressions; prosternum convex, setigero-punctate on each side of middle; legs stout, anterior tibiæ tridentate externally, four posterior tibiæ widely incrassate at apex. Black.

Head wide ( $3 \times 3.7$  mm); vertex smooth, not transversely impressed; clypeus longitudinally sulcate in middle; a deep

sharply defined fossula on each side of clypeus hardly extending on to front, clypeal suture strongly impressed between these fossulae; preocular sulci hardly marked; eyes round, convex, not prominent; orbits widely and lightly swollen below eyes posteriorly; antennae short, moniliform, second joint a little larger than fourth, joints 4-11 short, globular; penultimate joint of labial palpi bisetose in front. Labrum concave, longitudinally sulcate, truncate with external angles rounded. Prothorax short ( $4.2 \times 5.3$  mm.), very convex, lightly declivous to base in middle, widest about middle; sides rounded, roundly and sharply narrowed posteriorly and meeting base at right angles; anterior margin very lightly emarginate between anterior angles,—these marked, hardly advanced; basal angles rectangular; border narrow on sides, hardly wider at anterior angles, thick and entire on base; one or two marginal punctures at anterior fourth; median line lightly impressed. Elytra convex, wide ( $8.5 \times 6.4$  mm.), roundly subparallel on sides, widely rounded at apex, wide and truncate at base; shoulders projecting strongly from peduncle, shortly rounded; four rows of clusters of punctures on each elytron, punctures of first series in a single row, of second in a double row, of third and fourth in more irregular clusters, usually in depressions; space between fourth series and margin punctate; marginal channel narrow, obsoletely punctate. Prosternum roundly acclivous to anterior margin; a few piliferous punctures in front of and near inner angle of coxal cavities. Metasternal episterna (with epimera) oblong. Ventral segments bipunctate towards middle. Anterior femora short, dilatate in middle, anterior edge of lower side plurisetose in middle; intermediate femora thick, dilatate in middle, anterior side with a double row of closely placed strong setigerous punctures extending from base to near apex and curving upwards towards apex; posterior femora short, wide, lower side strongly and roundly dilatate in middle, anterior side setigero-punctate (a few of these punctures near upper margin a little before the middle). Length 13.5-16, breadth 5.6-4 mm.

*Hab.* —Rottneest Island, Geraldton (Lea).



Evidently allied to *Gn. obscurus*, Reiche, but Putzeys (Stett. Ent. Zeit. 1868, p. 375) describes that species as having the elytra hardly longer than broad ( $7.5 \times 7$  mm.); I think the punctures of the elytra must be arranged as in *Gn. obscurus*. It also has some affinity to *Gn. irregularis*, Westw., but judging from Westwood's description and figure differs by being smaller, the head not impressed behind the eyes, the prothorax with the border narrower and the margins not plurisetose. Putzeys' more detailed description (Stett. Ent. Zeit. 1868, 374) of *Gn. irregularis* suggests the following differences:—the postocular prominences are not large and prominent; the prothorax has not the sides straight in their anterior half, nor the margins wide, reflexed in front and quadripunctate on their anterior half.

18. GN. sp.? *Hab*—Donnybrook (Lea). One example of a species allied to and of same size as *Gn. insignitus*, Macl. More specimens would be required to deal satisfactorily with it.

19. GN. sp.? *Hab*—Swan River (Lea). One example of a species closely allied to *Gn. cicatricosus*, Reiche, from which it apparently differs (the marginal stria of the elytra is not punctate, nor the anterior angles of the prothorax widened), but not knowing *Gn. cicatricosus* in nature, I am unwilling to speak positively of the species before me from a single specimen.

20. GN. sp.? *Hab*.—Newcastle (Lea). One example of a species that is closely allied to *Gn. westwoodi*, Putz., but which I cannot positively determine as that species.

#### Genus PARROA.

21. P. NOCTIS, Sl; l.c. Supp. Sp. 7421. *Hab*.—Geraldton and Mullewa (Lea).

#### Genus ADOTELA.

22. A. CONCOLOR, Casteln.; l.c. Sp. 628. *Hab*.—Coolgardie (White).

#### Genus CEROTALIS.

23. A. SUBSTRIATA, Casteln.; l.c. Sp. 634. *Hab*.—Bridgetown (Lea); Mount Barker (Helms).

Var. ? Differs slightly from the typical form by being wider, more obscurely coloured and having six (not five) punctures along lateral margin. *Hab.*—Bridgetown.

24. *C. LONGIPES*, n.sp.

♀. Elongate, disc of prothorax and elytra depressed; prothorax longer than broad, sides decidedly sinuate near base, anterior angles shortly but decidedly advanced; elytra oval; legs long, slender. Subopaque; head black with greenish reflections; prothorax black with greenish reflections; elytra greenish-black; under surface purple-brown; antennæ, palpi and legs piceous-brown.

Head convex, smooth, faintly transversely impressed behind eyes; front widely impressed on each side between antennæ, lightly convex in middle; eyes convex, not prominent; orbits lightly swollen behind eyes. Prothorax longer than broad ( $5 \times 4.75$  mm.), depressed; sides lightly rounded, very little narrowed to anterior angles, decidedly but gradually narrowed to base; anterior margin lightly emarginate; anterior angles shortly and obtusely advanced; base truncate; basal angles sharply rectangular; border narrow, thicker posteriorly, sinuate, and turned slightly downwards a little before base, extending along one-fourth of base on each side; median line finely impressed; basal area defined by a faint impression and strongly declivous to sides. Elytra oval ( $10 \times 5.5$  mm.), hardly narrowed to base, depressed on disc, smooth; sides lightly rounded; apex obtuse, not widely rounded; shoulders not marked (rounded off); border thick, reaching apex, angular close to peduncle; four submarginal punctures on each elytron, first behind shoulder, second just before apical curve, other two (a considerable distance apart) near apex. Anterior femora compressed, not swollen in middle, lower side flattened (subcanaliculate), tubercle on lower side near base small, depressed; posterior tarsi long, slender, first joint about as long as two succeeding ones together.

Length 17, breadth 5.5 mm.

*Hab.*—Coolgardie (White, one example).

Apart from differences in colour this species may be distinguished from *C. substriata*, Casteln., and *C. semiviolacea*, Casteln.,

by its more slender legs, the femora hardly swollen in the middle; the prothorax with sharply rectangular basal angles, the border lightly sinuate and a little bent downwards before meeting the base.

*Notz.*—It is possible the specimen before me is not quite mature and that the metallic tints would be brighter in a fully developed example. Faint obsoletely punctate striae are visible on the elytra, but these I consider a *post mortem* effect.

25. *C. BRACHYPLEURA*, n.sp.

♂. Oval levigate, subdepressed; prothorax with sides shortly sinuate before base; elytra oval; four anterior tarsi with spongiose tissue beneath, posterior tarsi short. Upper surface shining black, under surface shining bluish-black.

Head lightly and widely impressed across vertex; front subdepressed; vertex convex; eyes convex, prominent, lightly enclosed posteriorly. Labrum truncate (hardly emarginate), sulcate in middle. Prothorax hardly broader than long ( $4.25 \times 4.3$  mm.), convex, shortly narrowed to base; disc lightly and widely subdepressed; sides strongly rounded; anterior angles marked, hardly advanced; anterior margin lightly and widely emarginate; basal angles rectangular; border narrow, sinuate before base, obsolete in middle of base; median line lightly marked. Elytra widely oval ( $8 \times 5.25$  mm.), not wider towards apex, lightly convex, obsoletely substriate, gently declivous to apex, lightly declivous to base; sides rounded; border narrow, reaching peduncle, thicker on apical curve, not thickened on humeral curve or angulate at basal extremity; a marginal puncture near humeral angle; five foveiform setigerous punctures a considerable distance from margin on posterior half of each elytron. Metasternal episterna short, wide; epimera very narrow, linear. Fourth and fifth ventral segments with a wide shallow round depression on each side; one puncture on each side of anus. Anterior femora compressed; anterior tibiae wide at apex; anterior tarsi with four joints dilatate and spongiose beneath; intermediate tarsi with three basal joints spongiose beneath; posterior tarsi with joints short, wide, apical joint wide at base.

Length 14, breadth 5.25 mm.

*Hab.*—Coolgardie (White, one example).

I have placed this species in the genus *Cerotalis* because the four anterior tarsi of the ♂ have spongiöse tissue on the under surface of the same joints as the species of that genus; but it is a wider and shorter species than any other as yet assigned to *Cerotalis*, having more the facies of an *Adotela* (e.g., *A. concolor*). The very short linear epimera of the metasternum are not found in the other species of *Cerotalis*.

#### Genus PROMECODERUS.

26. *P. ALBANIENSIS*, Casteln.; l.c. Sp. 582. *Hab.*—Bridgetown, Donnybrook (Lea).

27. *P. SCAUROIDES*, Casteln.; l.c. Sp. 615. *Hab.*—Swan River, Rottnest Island (Lea).

28. *P. DYSCHIROIDES*, Guér.; l.c. Sp. 590. *Hab.*—Newcastle (Lea).

29. *P. INTERMEDIUS*, n.sp.

♂. Elliptic-oval, robust, lævigatè. Bronzed-black; legs black, tarsi and coxæ reddish. Head ordinary, convex; eyes prominent; postocular prominences about half size of eyes, sloping evenly behind. Prothorax a little broader than long (2.7 × 3 mm.), convex, lightly declivous to base; sides strongly rounded; anterior angles lightly marked, projecting a little from head; basal angles rectangular; border entire on base. Elytra oval, convex (5.5 × 3.7 mm.). Ventral segments roundly and deeply foveate laterally. Anterior tarsi with a small (almost obsolete) tuft of spongiöse tissue below inner angle of three basal joints; intermediate tarsi without spongiöse tissue beneath.

Length 10-11, breadth 3.7-4 mm.

*Hab.*—Mount Barker (Lea and Helms).

Closely resembling *P. ovipennis*, Sl., but differing by its darker colour, darker antennæ, piceous-black tibiæ; narrower head, more prominent eyes, smaller and less protuberant postocular prominences, clypeus not emarginate; prothorax narrower, less

declivous to base, anterior angles more marked, basal angles more marked; elytra less dilatate on sides, less strongly and less roundly ampliate from peduncle.

30. *P. OVIPENNIS*, n.sp.

Oval, robust, lævigata; head large; prothorax convex (rather depressed on disc), strongly angustate posteriorly, bordered on base; elytra oval, short, convex; mesosternal episterna quadrate, epimera short—twice as broad as long; ventral segments roundly foveate on each side. Shining, bronzed-black; under surface piceous with a faint metallic tinge laterally; legs piceous, tibiæ, tarsi, antennæ and palpi piceous-red.

♂. Head large, convex, wide at base; clypeal suture hardly impressed; clypeus roundly emarginate; eyes prominent, enclosed behind; orbits decidedly raised posteriorly; postocular prominences about one-half size of eyes. Labrum emarginate-truncate. Palpi with apical joint slender, swollen in middle, narrowed to apex, truncate (of labial strongly arcuate on external side). Prothorax transverse ( $3 \times 3.3$  mm.), widest rather before middle, declivous to base; sides strongly rounded; anterior margin truncate; anterior angles not marked, projecting a little from head; basal angles rectangular (hardly obtuse); border narrow, not sinuate before base, entire on base; median line strongly impressed; a transverse impression a little before base. Elytra widely oval ( $5.2 \times 3.8$  mm.), convex, lævigata (sometimes faint traces of striæ on disc, probably a post mortem effect); base wide, gently but decidedly and evenly narrowed to peduncle. Legs light; posterior trochanters shortly reniform, obtuse at apex; four anterior tarsi without spongiose tissue on under side of any of the joints.

♀. With prothorax and head a little narrower than ♂.

Length 9.5-11, breadth 3.5-4.2 mm.

*Hab.*—Beverley (Lea).

Resembling *P. scauroides*, Casteln., but with the head larger, the prothorax more declivous behind, the elytra more dilatate on the sides, the lateral foveæ of the 4th and 5th ventral segments not giving off a stria internally, ♂ without spongiose tissue beneath any of the joints of the tarsi.

The large head and the prothorax wider than usual in comparison with the elytra are marked features in this species and are especially noticeable in the ♂.

31. *P. LEAI*, n.sp.

♀. Oval, convex; head large; prothorax transverse, bordered on base; elytra widely oval, obsoletely striate near suture; metasternum with episterna short (subquadrate), epimera short—about twice as broad as long. Black, shining; upper surface obscurely bronzed; tibiae piceous; antennæ, palpi and tarsi piceous-red.

Head large, wide at base, convex; clypeal suture distinct, lightly impressed; clypeus emarginate; eyes round, convex, prominent; orbits swollen behind eyes; postocular prominences sharply raised posteriorly, about half size of eyes; space between eye and subocular ridge wider than eye. Labrum widely and lightly emarginate. Palpi with apical joint long, slender, lightly dilatate in middle, truncate. Prothorax broader than long ( $3.5 \times 3.9$  mm.), convex (a little depressed on disc), widest just behind anterior marginal puncture; sides lightly rounded, strongly narrowed posteriorly, lightly narrowed anteriorly; anterior margin truncate; anterior angles not marked, hardly projecting from head; basal angles almost rectangular (very lightly obtuse); border narrow, not sinuate before base, entire on base; median line strongly impressed; a well marked transverse impression a little in front of base. Elytra wide, oval ( $7 \times 5.25$  mm.), convex (hardly depressed on disc), widest about middle; sides strongly rounded; shoulders wide, roundly narrowed to peduncle (obsoletely striate on disc). Prosternum roundly and strongly acclivous to anterior margin. Ventral segments roundly foveate on each side. Legs light; posterior trochanters reniform, short; posterior tarsi with apical joint narrowed to base.

Length 13, breadth 5.25 mm.

*Hab.*—Newcastle (Lea, one example).

This species has more resemblance to *P. blackburni*, Sl., than to any other described species; it is, however, a larger species

with head larger, postocular prominences more developed, prothorax less dilatate on sides, metasternal episterna and epimera shorter. It shows an evident natural affinity to *P. ovipennis*, Sl., therefore I expect the ♂ will prove to have the basal joints of the four anterior tarsi without spongiose tissue beneath. The specimen before me shows evidence of a lengthened immersion in alcohol, and for this reason I believe the elytra are naturally lævigatae.

32. *P. ANGULICEPS*, n.sp.

♀. Elliptic-oval, subcylindrical, lævigata; head with posterior angle of outer margin of buccal fissure prominent, obtuse (subrectangular); prothorax convex, strongly angustate posteriorly, bordered on base; elytra oval, convex ( $7.5 \times 5$  mm.); posterior trochanters pointed at apex. Shining, upper surface bronzed-black—tending to greenish-black in middle; under surface rather piceous with bronzy metallic reflections on posterior ventral segments; legs piceous-black with metallic tinge on femora; antennæ, tarsi and palpi reddish-brown.

Head ordinary; vertex convex, not transversely impressed; eyes round, convex, prominent; orbits lightly swollen behind eyes. Prothorax nearly as long as broad ( $3.8 \times 3.85$  mm.), convex, declivous to base; sides strongly rounded; anterior margin widely emarginate in middle; anterior angles obtuse, not marked, projecting considerably from head; base truncate; basal angles almost rectangular; border narrow, not sinuate before base, entire on base; median line strongly impressed. Episterna of metasternum almost square; epimera short, about twice as broad as long. Ventral segments 3-6 roundly foveate on each side.

Length 13, breadth 5 mm.

*Hab.*—Swan River, Beverley (Lea, two examples, ♀).

Closely allied to and almost exactly resembling *P. ambiguus*, Sl. The chief points of difference seem to be the postocular prominences smaller and the elytra more shortly and strongly rounded at the shoulders, which gives them a more evenly rounded appearance. *P. ambiguus* has the outer margin of the



buccal fissure equally wide with similar posterior angles, and I should expect the same form to occur in *P. distinctus*, Sl., the only other nearly allied species. It should be noted that I have seen no undoubtedly male specimen belonging to the small group which these three species constitute, for the type specimen of *P. ambiguus* proves to be the ♀, and not the ♂ as I thought, and I did not determine the sex of the type specimens of *P. distinctus*.

*Note*.—In the type specimen of *P. ambiguus* there is a strongly impressed round fovea on the apical dilatation of the inflexed margin of the pronotum; this does not occur in *P. anguliceps*.

#### Tribe HARPALINI.

The classification of the Harpalini is perhaps the most difficult to elucidate of all the tribes among the Carabidæ,\* and it appears to me that the complexity of the subject has been increased by systematists having placed so much reliance for classificatory purposes on the secondary sexual characters of the male, particularly the vesture beneath the joints of the tarsi. Although the vesture of the under side of the tarsi is useful in helping to determine the affinities of species, and often of genera, being usually similar throughout each tribe, yet, in the classification of the Harpalini its use has been pushed to lengths that have added to the complication of the subject rather than diminished its intricacy; so much is this the case that it seems impossible, under the existing system, to refer a Harpalid of which the male is unknown with any certainty to its proper genus, or even to determine the group of genera into which it should fall. Any classification which is founded on secondary sexual characters seems to me to be so artificial that an attempt to replace it is always worth trying; therefore I offer the following table (though aware it is far from perfect) in the hope that by its aid the limits of the genera among the Australian Harpalini may be more accurately defined than seems to be the case at present.

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\* *Vide* Dr. G. H. Horn's remarks, Trans. Am. Ent. Soc. 1881, ix. p. 175.



*Table of Genera.*

- A. Eyes widely separated from mouth beneath.
- B. Elytra fully striate. (Penultimate joint of labial palpi with more than two setæ in front).
- C. Posterior tarsi long (joints usually linear); first joint as long as or longer than two succeeding joints together..... } GNATHAPHANUS.  
DIAPHOROMERUS.
- CC. Posterior tarsi short; joints short and incrassate to apex, apical angles with long spinous setæ, first joint not, or very little, longer than second (never as long as two succeeding together).
- D. Sinus of mentum with a median tooth..... } PHORTICOSOMUS.  
HYPHARPAX.
- DD. Sinus of mentum edentate..... CENOGMUS.
- BB. Elytra with eighth stria obsolete on sides.
- E. Form stout, convex; size moderate..... HARPLANER.
- EE. Form narrow, depressed; size small..... THENAROTIDIUS.
- AA. Eyes very close to buccal fissure beneath. (Penultimate joint of labial palpi with two setæ in front).
- F. Mandibles hardly projecting beyond labrum, not decussating.
- G. Elytra with striæ obsolete on sides, eighth not impressed on sides..... NOTOPHILUS.
- GG. Elytra fully striate (eighth impressed for whole length)..... STENOLOPHUS.
- FF. Mandibles projecting beyond labrum, acute, decussating; front obliquely biimpressed.
- H. Posterior tarsi with joints narrow, first joint longer than two succeeding together.
- I. Form stout..... LECANOMERUS.
- II. Form narrow..... THENAROTES.
- HH. Posterior tarsi with joints short and with long spinous setæ at apical angles, first joint shorter than two succeeding together. (♂ with a longitudinal fovea in middle of second ventral segment)..... EUTHENARUS.

Of the genera given in Mr. G. Masters' Catalogue of the Australian Coleoptera as belonging to the Harpalini, but not included in this table, *Geobænus*, *Acupalpus* and *Harpalus* should, I think, be deleted from the Australian fauna, there not being sufficient evidence that any of the species attributed to these genera properly belong to them; though I cannot at present suggest the true position of the species which are still left therein. *Anisodactylus*, properly speaking, does not appear to be represented in Australia; I therefore propose the genus *Cenognus* for the reception of the species referred to it by Baron Chaudoir. The single species of *Microsarus* has been shown by the Rev. T. Blackburn to be synonymous with *Gnathaphanus adelaide*, Casteln. *Nebriosoma*, another genus with a single species, is not a Harpalid; I have seen the type specimen of *N. fallax*, Casteln., in the Howitt Collection, and have noted that the episterna of the mesosternum reach the coxæ, so that the genus belongs to the first division of the Carabidæ; its place is apparently in the antarctic tribe Migadopini, a position indicated by de Castelnau, who regarded it as closely allied to *Loxomerus* (= *Heterodactylus*) from the Auckland Islands (not from New Zealand as said by de Castelnau). *Cyclothorax* does not belong to the Harpalini. *Teradia*, a genus placed by its founder, Count de Castelnau, in the Morionini, requires notice. Chaudoir has said that it does not differ from *Hypharpax*;<sup>\*</sup> I have seen a type specimen of the single species, *T. brisbanensis*, Casteln., in the Howitt Collection, and I agree with Chaudoir that it is a Harpalid, but not having examined it critically cannot pronounce on its relationship to the other Australian Harpalids, though I should think Chaudoir might be followed in his assignment of it to *Hypharpax*. It may be as well to note here that I believe *Amblygnathus minutus*, Casteln., to be a Harpalid, but not knowing it in nature cannot venture any suggestion as to its place among the Australian Harpalini.

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\* Bull. Mosc. 1880, lv. p. 318.

## Genus GNATHAPHANUS.

33. GN. RECTANGULUS, Chaud.; l.c. Sp. 665. *Hab.*—Upper Ord and Behn Rivers (Helms).

34. GN. SULCATULUS, Macl.; l.c. Supp. Sp. 7453. *Hab.*—Upper Ord River (Helms).

I have examined the types of *Diaphoromerus sulcatulus*, Macl., and *D. seripunctatus*, Macl., in the Macleay Museum and found them identical. I adopt *sulcatulus* as the preferable name, and place the species in the genus *Gnathaphanus* because it has the third interstice of the elytra pluripunctate; it is allied to *Gn. adelaidæ*, Casteln.

35. GN. ADELAIDÆ, Casteln.; l.c. Sp. 656. *Hab.*—Swan River, Pinjarrah, Mount Barker, Bunbury (Lea).

## Genus DIAPHOROMERUS.

I do not know characters by which this genus can be satisfactorily defined and divided from *Gnathaphanus*; the differences in the shape of the paraglossæ are not likely to be of much value, and that seems to have been the sole feature on which Baron Chaudoir relied to separate these genera.\* The two following species are left in *Diaphoromerus* by me only because they have been placed there by Chaudoir.

36. D. INÆQUALIPENNIS, Casteln.; l.c. Sp. 684. *Hab.*—Swan River, Darling Ranges, Mount Barker (Lea).

37. D. SCULPTIPENNIS, Casteln.; l.c. Sp. 698. *Hab.*—Rottneist Island (Lea).

Attention may be drawn to the fact that Chaudoir's measurements of this species (Ann. Mus. Civ. Genov. 1878, xii. p. 488) are too small; its length is 8.85 mm.

## Genus HYPHARPAX.

Though I concur with the Rev. T. Blackburn† in placing in *Hypharpax* the Australian Harpalids—not belonging to *Phorti-*

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\* Vide Ann. Mus. Civ. Genov. 1878, xii. p. 503.

† Trans. Roy. Soc. S.A., 1887, p. 183.

*cosomus*—which have (a) the penultimate joint of the labial palps with more than two setæ in front, (b) the mentum with a tooth in the sinus, and (c) the posterior tarsi short, yet I am doubtful whether *H. bostocki*, Casteln., *H. dampieri*, Casteln., and *H. ranula*, Casteln., can strictly speaking be considered as belonging to the same genus as *H. krefftii*, Casteln., *H. inornatus*, Germ., and *H. kingi*, Casteln., which are typical species of the genus. As a result of extending the limits of the genus *Hypharpax* to include those species having in combination the characters mentioned above, I have been unable to tabulate the differences between that genus and *Phorticosomus*; normally the species of *Hypharpax* have the derm of the elytra shagreened, while the species of *Phorticosomus* have not, unless slightly near the lateral margin; *Harpalus dampieri*, Casteln., *H. ranula*, Casteln., and *H. bostocki*, Casteln., are as far as I know, the only species at present included in *Hypharpax* which have the disc of the elytra not shagreened, but otherwise these three species do not appear to have much affinity towards one another. It may be noted that, as far as my observations go, the third joint of the antennæ in *Hypharpax* is so sparsely setose (and then only near the apex), that it resembles the second joint more than the fourth, and may without inaccuracy be called glabrous, while in the other genera (excepting *Phorticosomus*) the third joint is hirsute, except near the base, after the manner of the succeeding joints, though to a less degree.

38. *H. KREFFTI*, Casteln.; l.c. Sp. 701. *Hab.*—Wyndham (Helms).

39. *H. KINGI*, Casteln.; l.c. Sp. 700. *Hab.*—Pinjarrah, Mount Barker, Bunbury (Lea).

40. *H. SCULPTURALIS*, Casteln.; l.c. Sp. 697. *Hab.*—Swan River, Rottnest Island, Darling Ranges, Mount Barker (Lea).

41. *H. ÆREUS*, Dej.; l.c. Sp. 671. *Hab.*—Swan River, Rottnest Island, Darling Ranges (Lea), Albany (Helms).

42. *H. BOSTOCKI*, Casteln.; l.c. Sp. 676. *Hab.*—Rottnest Island (Lea).

43. *H. DAMPIERI*, Casteln.; l.c. Sp. 677. *Hab.*—Newcastle, Beverley, Pinjarrah (Lea).

44. *H. RANULA*, Casteln.; l.c. Sp. 694. *Hab.*—Donnybrook (Lea).

45. *H. PUNCTICOLLIS*, MacL.; l.c. Supp. Sp. 7479. *Hab.*—Upper Ord River (Helms).

Though placed by Sir William Macleay in the genus *Harplaner*, it does not belong to it, as is sufficiently shown by the labial palps having the penultimate joint with more than two setæ in front. Its short posterior tarsi indicate its position pretty clearly.

46. *H. sp.?* ♂. A single specimen of a species with testaceous tibiæ allied to *H. deyrollei*, Casteln., but differing from that species by its wider and more convex shape, the puncture of the third interstice of the elytra placed nearer the apex, &c. The posterior femora are not dentate on the underside, and the posterior tibiæ are strongly arcuate. It is evidently an undescribed species, but I am not prepared to describe it on the single specimen before me.

*Hab.*—Beverley (Lea).

#### CENOGMUS, n.gen.

I propose this genus to receive *Harpalus rotundicollis*, Casteln., *H. waterhousei*, Casteln., and *Anisodactylus opacipennis*, Chaud. The remarks of both Baron Chaudoir and Mr. Blackburn on these species suggest the necessity of a new genus, which can be readily identified in the Australian fauna by the characters allotted to it in the table above.

47. *C. ROTUNDICOLLIS*, Casteln.; l.c. Sp. 668. *Hab.*—Pinjarrah (Lea).

48. *C. WATERHOUSEI*, Casteln.; l.c. Sp. 669. *Hab.*—Geraldton and Mullewa (Lea).

#### Genus HARPLANER.

49. *H. VELOX*, Casteln.; l.c. Sp. 670. *Hab.*—Newcastle, Swan River, Beverley, Rottnest Island (Lea).

Evidently plentiful in the Swan River District; it is said by de Castelnau to be common near Melbourne. I have not seen it

from Victoria, though a specimen is in my collection labelled "Victoria," but on what authority I do not know; my not having seen it from near Melbourne is no evidence that it does not occur there.

THENAROTIDIUS, n.gen.

*Head* smooth, front not impressed. Eyes round, convex, coarsely faceted, distant from buccal fissure beneath.

*Mandibles* short, stout.

*Ligula* small, narrowed to apex, corneous; apex obtuse, bisetose; paraglossæ membranous, wide, subquadrate, extending considerably in front of ligula, connate in front of ligula.

*Mentum* concave; sinus bordered, oblique on each side, evenly rounded (edentate) in middle.

*Palpi*: maxillary with apical joint fusiform, longer than penultimate; labial short, stout, two terminal joints of equal length, apical joint thick, obtuse at apex, finely and sparsely setose.

*Prothorax* transverse, not impressed or punctate on each side of base; marginal setigerous puncture rather large, placed about middle of length.

*Elytra* lightly striate; eighth stria obsolete in middle; interstices shagreened and finely punctate, third finely unipunctate about apical fifth.

*Metasternum* with episterna narrow, elongate.

*Legs* light: ♂ with four anterior tarsi lightly dilatate, four basal joints densely clothed with spongiöse tissue beneath. Posterior tarsi linear, hardly as long as tibiæ, first joint nearly as long as two succeeding ones together.

*Apterous*: body shortly pedunculate; upper surface shagreened.

The type of this genus is *Th. gogatius*, MacL., a species which was described as belonging to the genus *Bembidium*; it is common in many parts of N.S. Wales. *Thenarotidius* may be readily recognised among the Australian Harpalids by its narrow depressed form, coal-black colour and eyes distant from mouth beneath. The penultimate joint of the labial palps appears to have only two setæ in front, but a careful examination of the palps removed

from the head seemed to indicate the presence of one or two more fine setæ. I have therefore refrained from alluding to the setæ of this joint in the diagnosis of the genus, but in any case the affinity of the genus is to those with bisetigerous palpi, its position being apparently between *Harplaner* and *Notophilus*.

50. *Th. ANTHRACINUS*, n.sp.

Elongate, subdepressed; head large; prothorax transverse, apex and base of about equal width; elytra subtruncate, not attaining apex of abdomen, finely striate. Black, subopaque; legs piceous or piceous-black, tibiæ sometimes brownish-testaceous except at apex; antennæ fuscous, with basal joint brownish-testaceous.

Head wide at base, convex, finely shagreened and minutely punctate; clypeal suture finely impressed; clypeus bordered. Labrum transverse, truncate, shagreened and finely punctate. Prothorax transverse ( $1 \times 1.3$  mm.), finely shagreened and minutely punctate; sides lightly rounded; anterior margin very lightly emarginate; anterior angles obtusely rounded; posterior angles widely rounded, not marked; base lightly arcuate, obsoletely sinuate on each side of peduncle; border reflexed, entire on base, passing round anterior angles on to sides of anterior margin; median line hardly impressed (perceptible on disc). Prosternum finely bordered on anterior margin. Elytra truncate-oval, widest a little behind middle, very lightly declivous to apex; sides very lightly rounded; apex arcuate-truncate; striæ fine, distinct on disc, obsolete near sides (six inner striæ distinct on each elytron); striae at base of second interstice very feebly impressed; interstices flat, shagreened and finely punctate; lateral border reflexed; a few (about six) submarginal punctures near apex and humeral angles.

Length 4.5, breadth 1.5 mm.

*Hab.*—Mount Barker (Lea, three specimens).

Closely resembling *Th. (Bembidium) gagatinus*, MacL., with which it agrees in facies, sculpture, &c.; but differing by having the metasternum (with its episterna) shorter; the prothorax with the apex less emarginate, the anterior angles less marked, the posterior angles more widely rounded; the elytra widening more



behind the shoulders, the base less squarely truncate, the humeral angles wider; the colour a deeper black, &c.

Genus NOTOPHILUS.

51. *N. GRACILIS*, Blkb.; l.c. Supp. Sp. 7465. *Hab.*—Beverley, Darling Ranges, Pinjarrah, Bunbury (Lea).

52. *N. OBLIQUUS*, n.sp.

Alate, elliptical; dorsal surface depressed, minutely shagreened; prothorax broader than long, obliquely narrowed to base, hardly wider across base than apex, bordered on whole circumference; elytra finely striate, striae obsolete on sides, third interstice unpunctate a little in front of apical declivity. Black, shining, basal joint of antennae testaceous.

Head large (not short), smooth; frontal impressions feebly impressed (nearly obsolete); lateral punctures of clypeus large; eyes convex, not prominent. Prothorax lightly transverse ( $0.7 \times 0.9$  mm.), widest before the middle (at marginal seta); sides lightly rounded anteriorly, oblique posteriorly; apex truncate (hardly emarginate); anterior angles rounded, not advanced; basal angles obtuse, lightly marked; base lightly bisinuate, arcuate in middle, a little oblique at each side; border lightly reflexed on sides, very fine on middle of base and apex; a wide transverse impression a little before the base terminating on each side in a shallow rounded depression; a shallow arcuate impression across anterior part of disc; median line obsolete. Elytra wider than prothorax ( $2.1 \times 1.3$  mm.), widest behind middle, depressed on disc; base much wider than base of prothorax; humeral angles rounded; sides lightly rounded; apex shortly arcuate, widely sub-sinuate on each side; striae shallow, all marked at apex, only four inner ones marked on disc, eighth obsolete on sides; ninth interstice wide at apex, punctate near shoulders and apex; border narrowly reflexed.

Length 3.3, breadth 1.3 mm.

*Hab.*—Geraldton (Lea, one specimen).



From *N. niger*, Blkb., *N. gracilis*, Blkb., and presumably from *N. parvus*, Blkb., the species it resembles in colour, it differs by the form of the posterior angles of the prothorax which, though obtuse, are decidedly marked, instead of being rounded off. It is the largest species of the genus yet described, and is more elongate than the others; compared with *N. niger* and *N. gracilis* the prothorax is less transverse and more narrowed to the base, and the elytra more decidedly striate. Obsolete traces of a striae are noticeable under a lens at the base of the second interstice.

#### Genus STENOLOPHUS.

53. *S. DINGO*, Casteln.; l.c. Sp. 731. *Hab.*—Mount Barker, Donnybrook, Darling Ranges, Geraldton and Mullewa (Lea); Upper Ord River (Helms).

*S. dingo* (of which *S. politus*, Macl., is—as noted by Mr. G. Masters, Cat. Supp. p. 37—a synonym) seems to range over the whole of Australia. I believe it will be found that *S. dingo*, Casteln., is synonymous with *Harpalus vestigialis*, Erichs., with the description of which it seems to agree so closely that it is only the fact of my not having seen it from Tasmania that prevents my placing it under that species.

#### Genus LECANOMERUS.

54. *L. RECTICOLLIS*, Macl.; l.c. Supp. Sp. 7480. *Hab.*—Upper Ord River (Helms).

Sir William Macleay placed this species in *Harpalus*—a genus to which it certainly does not belong. It is, I think, a *Lecanomerus* allied to *Diaphormerus victoriensis*, Blkb., a species which—from examination of a specimen sent to me by Mr. Blackburn—I would also refer to *Lecanomerus*.

55. *L. OCCIDENTALIS*, n.sp.

Alate, elliptical, lightly convex, minutely shagreened under a lens; head rather elongate, front obliquely biimpressed, mandibles prominent, decussating; prothorax quadrate-cordate, wider across base than apex; elytra striate, interstices depressed, third uni-

punctate a little behind middle. Piceous-black, ♂ nitid, ♀ with elytra subnitid (hardly opaque); vertex, middle of base of prothorax and sterna reddish; prothorax with narrow ferruginous margin; elytra with light brownish margin; antennæ fusco-ferruginous, basal joint testaceous; coxæ, tibiæ and tarsi darker.

Head convex, cylindrical behind eyes, levigate; frontal impressions obliquely divergent backwards to near middle of eyes, short, well marked; eyes convex, prominent. Labrum transverse-quadrate, shagreened. Prothorax a little broader than long ( $1.5 \times 1.75$  mm.), depressed, declivous on anterior part of sides, widest before middle (at marginal seta); sides lightly rounded, roundly and decidedly narrowed anteriorly, gently narrowed posteriorly; basal angles widely rounded, not the least marked; apex lightly emarginate; anterior angles obtuse, lightly marked; border narrow, extending round anterior angles a little on to anterior margin on each side, and on each side of base to peduncle; lateral channel not impressed; a wide shallow impunctate depression on each side of base. Elytra convex, ovate ( $3.8 \times 2.5$  mm.); base a little wider than base of prothorax, truncate; humeral angles rounded; sides strongly, shortly and roundly narrowed to base; apical curve with a light sinuosity on each side at extremity of eighth stria; striæ distinctly impressed, a little stronger in ♂ than in ♀; ninth interstice becoming wide near apex, its punctures widely interrupted on anterior half and placed in two groups on posterior part (four near apex and three a little further forward); border narrow, reflexed.

Length 5.6, breadth 2.27 mm.

*Hab.*—Swan River, Darling Ranges, Pinjarrah, Donnybrook, Mount Barker (Lea), Albany (Helms).

This is evidently a common species in West Australia. Compared with a Victorian species, found near Melbourne, which is allied to, if not identical with, *Harpalus verticalis*, Erichs., and also allied to *L. flavocinctus*, Blkb., it differs by having the prothorax less transverse, and the apex of the elytra less strongly sinuate on each side, the ♀ with the elytra much more finely shagreened and not sericeous, &c. It evidently differs from *L*

*flavocinctus* and *L. obscurus*, Blkb., by having the prothorax less transverse; apparently it is closely allied to *L. lindi*, Blkb., but has the margin of the elytra (including the posterior half of the ninth interstice, and the eighth near the apex) lightly coloured. It is characteristic of *Lecanomerus* to have three punctures on the ninth interstice placed a little before those near the apex.

Genus THENAROTES.

56. TH. BRUNNICOLOR, n.sp.

Alate, rather robust, not shagreened; head lightly biimpressed, mandibles short, projecting beyond labrum, mentum lightly emarginate, edentate; antennæ inserted very near eyes, two basal joints glabrous; prothorax transverse, base hardly wider than apex, a wide depressed finely punctate space on each side near basal angle; elytra fully striate, interstices lightly convex, second striolate at base, third unipunctate about posterior third; posterior tarsi with first joint about as long as two succeeding joints together. Prothorax and elytra brownish—elytra darker than prothorax; head black; antennæ fuscous, two basal joints testaceous; under surface ferruginous-piceous; legs testaceous.

Head wide, convex, minutely shagreened; frontal impressions short, rather wide, oblique; lateral border lightly sinuate above anterior part of eyes; clypeal suture linear; eyes large, prominent, globular, lightly enclosed at base. Prothorax transverse ( $0.8 \times 1.1$  mm.), widest before the middle; disc lightly convex, a rather wide depressed space before base; margins widely explanate posteriorly; sides lightly rounded on anterior two-thirds, very lightly oblique posteriorly; anterior margin truncate; anterior angles widely obtuse; posterior angles obtuse; base emarginate-truncate, lightly rounded on each side; border only marked (and lightly reflexed) on anterior two-thirds of sides; median line lightly impressed; marginal setigerous puncture placed about anterior fifth. Elytra considerably wider than prothorax ( $2.5 \times 1.5$  mm.), convex, declivous to base, decidedly but not abruptly declivous to apex; base truncate; humeral angles rounded; sides subparallel in middle (very lightly rounded); apical

curve short; striae strongly impressed, eighth well marked in all its course; interstices a little convex, becoming narrow and decidedly convex towards apex, second wider near base and with a well marked basal striole rising from base of second stria, ninth narrower than eighth in middle of length, wider towards apex; lateral border reflexed.

Length 3·7, breadth 1·5 mm.

*Hab.*—Behn River (Helms).

Differs from the other species of *Thenarotes* by having a well marked striole at base of second interstice of elytra. Its facies is that of *Thenarotes*, but perhaps it is not in its proper place in that genus, though it does not come into any other Australian genus. The characters that define the genus *Thenarotes* are a little doubtful; the type (*T. tasmanicus*, Bates) is fully striate and has the mentum toothed in the sinus; *Th. australis*, Blkb., has the elytra with the striae obsolete on the sides, the mentum edentate and the ♂ without spongiöse tissue beneath any joints of the four anterior tarsi. *Th. brunnicolor* has the mentum edentate but the elytra fully striate (the tarsal vesture of the ♂ unknown). Perhaps the characters of the genus may vary sufficiently to include all these differences, in which case *Th. tasmanicus*, *Th. australis* and *Th. brunnicolor* would represent three groups in the genus, but it may be found necessary, when the classification of these and allied Harpalids is fully worked up, to place each of these species in a separate genus.

*Note.*—Only that the basal angles of *Th. brunnicolor* are widely rounded, the sides would meet the base almost at right angles.

#### Genus EUTHENARUS.

This New Zealand genus is represented in Australia, and at least one species, viz., *E. (Acupalpus) morganensis*, Blkb., has been described. I have compared *Acupalpus morganensis* with *E. brevicollis*, Bates, and *E. puncticollis*, Bates, the New Zealand species for which Mr. Bates founded the genus, and have found it congeneric with them.

57. *E. COMES*, n.sp.

Elongate-oval, shining (not shagreened), lightly convex; front obliquely biimpressed; prothorax a little broader than long evidently wider across base than apex, punctate on each side of base, marginal setigerous puncture small and placed about anterior fourth; elytra truncate-oval, fully striate, second interstice without striae at base, third interstice unipunctate near posterior third; tarsi short, posterior with joints short. Piceous-black, shining; lateral border of prothorax and lateral border and suture (posteriorly) of elytra brownish-testaceous; legs testaceous, coxæ, tibiæ and tarsi slightly infuscate; antennæ dark fuscous, basal joint testaceous.

Head lævigata; frontal impressions extending obliquely backwards to near middle of eyes, rather strongly impressed; eyes convex, not very prominent. Prothorax broader than long ( $1.15 \times 1.3$  mm.), widest before middle, lævigata excepting a slightly depressed punctate area near each basal angle (these punctate spaces sometimes nearly meeting in middle); sides lightly rounded anteriorly, obliquely and lightly narrowed posteriorly; anterior margin hardly emarginate; anterior angles lightly marked; base truncate, sloping obliquely forward a little on each side; basal angles obtuse but marked (not rounded); border rather thick, passing round basal angles on to base as far as peduncle on each side; median line lightly marked. Elytra much wider than prothorax ( $2.6 \times 1.7$  mm.), convex, strongly declivous to apex, base truncate, much wider than base of prothorax; sides lightly rounded; apical curve rounded, without lateral sinuities; striae lightly impressed, entire, second rising from a puncture; interstices depressed.

Length 4.4.5, breadth 1.6-1.8 mm.

*Hab.*—Swan River, Darling Ranges, Donnybrook (Lea).

Closely allied to *E. morganensis*, Blkb., but a little more robust, and without the green tinge of that species; the following differences may be noted also:—eyes a little less prominent; prothorax with the sides less evenly rounded, straighter and more oblique posteriorly, posterior angles marked (not rounded off),

puncturation on each side of the base more dense, covering a greater space and not placed in such deep or well defined depressions; elytra more strongly declivous to apex. In *E. morganensis* and *E. comes* the males have the vesture of the under side of the four anterior tarsi as in *E. brevicollis*, Bates, and agree with that species in having a fovea in the middle of the abdomen just behind the metasternum.

Tribe *CHLÆNIINI*.

Group *Oodides*.

Genus *OODES*.

58. *O. IMPRESSUS*, Chaud.; l.c. Sp. 568. *Hab.*—Beverley, Rottnest Island (Lea).

59. *O. OBLONGUS*, Casteln.; l.c. Sp. 572. *Hab.*—Behn River (Helms).

Genus *COPTOCARPUS*.

60. *C. CONVEXUS*, Casteln.; l.c. Sp. 557. *Hab.*—Swan River, Beverley, Newcastle, Mount Barker (Lea).

61. *C. GIBBUS*, Chaud.; l.c. Sp. 558. *Hab.*—Mount Barker, Bunbury (Lea); Albany (Helms).

Tribe *BRACHYNIINI*.

Genus *PHEROPSOPHUS*.

62. *PH. VERTICALIS*, Dej.; l.c. Sp. 102. *Hab.*—Behn River (Helms).

Division *Harpalinæ bisetosæ*.

Tribe *PANAGÆINI*.

Genus *EPICOSMUS*.

63. *E. NOBILIS*, MacL.; l.c. Supp. Sp. 7399. *Hab.*—Behn River (Helms).

64. *E. PARVULUS*, MacL.; l.c. Sp. 7400. *Hab.*—Behn River (Helms).

Tribe *NOMIINI*.

This tribe was founded by Dr. G. H. Horn on the single genus *Nomius* (Trans. Am. Ent. Soc. ix. 1881, p. 129). It is evident from his remarks that he felt unable to define the tribe fully from want of sufficient data, and therefore restricted his diagnosis to the genus *Nomius*. The three genera known to him as apparently belonging to the Nomiini were *Nomius*, *Melœnus* and *Coscinia*, and these seemed to him to represent three groups in the tribe. I do not know any of these genera, but would place here all the genera presenting a combination of the following characters:—

Mandibles with a setigerous puncture in the scrobe; palpi with last joint not subulate; elytra with margin interrupted posteriorly and with an internal plica.

As thus constituted the Nomiini will contain ten Australian genera, which may be divided into four groups as shown in the following table:—

- |   |                      |
|---|----------------------|
| A. Elytra not bordered on base.....   | Group MEONIDES.      |
| b. Antennæ filiform, front without lateral carinæ, prothorax with two marginal setæ, elytra deeply and simply striate on disc. ....       | Genus MEONIS.        |
| bb. Antennæ moniliform, front with a ridge on each side, prothorax with lateral channel plurisetose, elytra punctate-striate on disc..... | Genus LACCOCENUS.    |
| AA. Elytra bordered on base.  |                      |
| C. Antennæ moniliform.. ..  | Group MELISODERIDES. |
| d. Elytra with seventh stria well marked.....   | Genus CELANIDA.      |
| dd. Elytra with seventh stria obsolete.   |                      |
| e. A striole at base of first interstice.....   | Genus MELISODERA     |
| ee. First interstice without a striole at base.....   | Genus TERAPHIS.      |
| CC. Antennæ filiform.   |                      |
| F. Mesosternum not narrow between coxæ (apex emarginate).. ..   | Group TROPOPTERIDES. |



- g.* Elytra impunctate on third interstice and without a striole at base of first..... Genus *TROPOPTERUS*.
- gg.* Elytra with third interstice punctate and first striolate at base..... Genus *CYCLOTHORAX*.
- FF. Mesosternum very narrow between coxæ, apex deeply triangularly excised (ninth interstice of elytra very narrow)..... Group *AMBLYTELIDES*.
- h.* Penultimate joint of tarsi not bilobed..... Genus *EPILYX*.
- hh.* Penultimate joint of tarsi bilobed.
  - i.* Prothorax with two marginal setæ on each side... Genus *AMBLYTELUS*.
  - ii.* Prothorax with one marginal seta on each side (at basal angle)..... Genus *DYSTRICHOTHORAX*.

*Notes on the preceding table.*—As I have no example of any of de Castelnau's species of the genus *Teraphis*, it is possible the tabulation given of the *Melisoderides* may be so defective as to be of little use, for the seventh stria may not be obsolete in the typical species of *Teraphis*, though it is so in *T. (Drimostoma) helmsi*, Sl., the only species of the genus I have.

De Castelnau's genera *Moriodema* and *Morioromorpha* seem not sufficiently distinct to be kept separate, and *Moriodema* is congeneric with *Melisodera*; therefore both have to fall out of the list of Australian genera.

*Drimostoma striato-punctata*, Casteln., the type of which I have seen in the Howitt Collection at the Melbourne University, is congeneric with the species from New Zealand, which Mr. Bates referred to the Chilean genus *Tropopterus*, and Mr. Bates was wrong in suspecting it to be identical with *Cyclothorax insularis*,



Mots \* *Drimostoma australis*, Casteln., *D. montana*, Casteln., and *D. alpestris*, Casteln., seem to me to be species of *Tropopterus*, so that genus must now be considered as belonging also to the Australian fauna. *D. thouzeti*, Casteln., and *D. vicina*, Casteln., are species of *Abacetus* I believe. *D. tusmanicus*, Casteln., I do not know. *D. antarctica*, Casteln., (type in Howitt Coll.), is doubtless a species of *Tropopterus*. In the tabulation of the group Amblytelides, I have followed the Rev. Thos. Blackburn.†

#### Genus CYCLOTHORAX.

65. *C. AMBIGUUS*, Erichs.; l.c. Sp. 923. *Hab.*—Swan River, Beverley, Pinjarrah, Bunbury, Donnybrook, Geraldton (Lea); Albany (Helms).

66. *C. FORTIS*, Blkb.; l.c. Supp. Sp. 7488. *Hab.*—Beverley (Lea).

67. *C. BLACKBURNI*, n.sp.

Narrow, convex; prothorax suborbiculate, sinuate-angustate posteriorly, basal angles sharply retangular, basal puncturation coarse; elytra strongly punctate-striate, lævigata towards apex and on lateral declivities. Black, nitid; femora ferruginous, tibiæ, tarsi and antennæ infuscate.

Head lævigata, convex, frontal impressions deep, rather wide, sinuate (parallel anteriorly, divergent posteriorly); eyes round, prominent. Prothorax hardly broader than long ( $1 \times 1.1$  mm.), convex; sides rotundate, strongly sinuate at posterior fifth, meeting base at right angles; apex truncate, angles not marked and very near sides of head; base truncate, a little rounded on each side near posterior angles; border very narrow, more strongly reflexed just at posterior angles; punctate basal area not depressed below plane of prothorax, the punctures large, separate; a rounded impression on each side near basal angles; median line lightly

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\* Ann. Mag. Nat. Hist. (4), 1874, xiii. p. 242. This error has been adopted without question by Capt. Thomas Broun in his Manual of the New Zealand Coleoptera, p. 29.

† P.L.S.N.S.W. 1892 (2), vii. p. 86.

impressed, ending in a foveiform depression posteriorly. Elytra much wider than prothorax ( $2.5 \times 1.6$  mm.), subparallel on sides, convex, declivous to base, strongly declivous to sides; base widely rounded and a little advanced on each side of peduncle; six inner striae on each elytron strongly marked, coarsely and closely punctate, first reaching apex, others hardly extending on to apical declivity, seventh indicated under a lens by a few fine nearly obsolete punctures; striole at base of first interstice elongate, as strongly punctate as the striae; third interstice bipunctate on disc; lateral interstice narrow, seriate-punctate; border reflexed on sides, extending round humeral angles but not reaching peduncle; basal border obsolete.

Length 4, breadth 1.6 mm.

*Hab.*—Pinjarrah (Lea, unique).

Allied to *C. eyrensis*, Blkb. I have submitted the type specimen to Mr. Blackburn for inspection, and he informs me that it is nearest *C. eyrensis*, but "differently coloured, and with the prothorax notably narrower."

*Note.*—The episterna of the metasternum are punctate, and probably more of the under surface as well, but, not having detached the specimen before me from the card to which it is gummed, the episterna only have been clearly seen.

#### Genus AMBLYTELUS.

68. *A. brevis*, Blkb.; l.c. Supp. Sp. 7499. *Hab.*—Mount Barker (Lea).

The single specimen of this species agrees with a specimen of *A. brevis* sent to me by Mr. Blackburn in every way, except that the fifth interstice of the elytra is without a series of punctures, and the basal angles of the prothorax are a little less obtuse, but these differences seem too slight for it to be considered as even a variety.

69. *A. leai*, n.sp.

Robust, convex; head constricted to a neck behind eyes; prothorax subcordate (truncate at apex and base), about as wide between posterior angles as between anterior angles, basal angles

obtuse; elytra lightly convex, declivous to base, crenulate-striate, interstices depressed, third, fifth and ninth seriate-punctate. Nitid, ferruginous-brown; elytra infusate towards sides and apex; under surface reddish becoming darker towards sides and apex of abdomen; femora testaceous (not pale); tibiae, tarsi and antennæ clear reddish-brown.

Head lævigata, convex between eyes, strongly constricted and transversely impressed behind eyes; front biimpressed, the impressions wide, parallel; eyes convex, prominent, truncate at base; postocular processes two-thirds length of eyes, obliquely narrowed to neck. Prothorax lightly transverse ( $1.9 \times 2.25$  mm.), convex, widest before middle; sides rounded; anterior angles widely rounded; lateral margins explanate, narrower and very lightly advanced at anterior angles, gently roundly-obliquely terminated at base behind posterior marginal setigerous puncture; apex and base finely bordered; median line well marked; a wide shallow impression near each basal angle; basal part of prothorax feebly depressed between these impressions. Elytra ovate ( $6 \times 3.8$  mm.), convex; basal border extending laterally to width of base of prothorax, arcuate posteriorly, meeting lateral border in a lightly marked angle; apical curve decidedly sinuate on each side at extremity of ninth interstice; eighth interstice wide on sides, narrow and carinate near apex; lateral margin explanate (not wide).

Length 9-10, breadth 3.5-3.9 mm.

*Hab.*—Mount Barker (Lea and Helms); Rottnest Island (Lea).

Allied to *A. brunnicolor*, Sl., the differences between them being noted under that species; both these species may be distinguished from *A. discoidalis*, Blkb., and *A. inornatus*, Blkb., by the posterior angles of the prothorax being obtuse and not rectangular.

*Note.*—The specimens from Rottnest Island differ slightly from those from Mount Barker (typical form) by their slightly smaller and lighter form, and by having the prothorax, the discoidal part (near the base) and the margins of the elytra of a paler colour; otherwise they seem to offer no noticeable differences; it may be a variety.

70. *A. BRUNNICOLOR*, n sp.

Robust, lightly convex; head constricted to a neck behind eyes; prothorax suborbiculate, hardly wider between posterior than between anterior angles, posterior angles widely obtuse; elytra lightly convex, declivous to base, punctulate-striate; interstices depressed, third, fifth and seventh seriate-striate. Ferruginous-brown; elytra infusate towards apex and sides, lateral margins of a light ferruginous colour, middle of body beneath and femora ferruginous.

Head lævigata, wide at eyes, transversely impressed across occiput; vertex lightly convex; front lightly and widely biimpressed; eyes globose, prominent, lightly enclosed at base; post-ocular processes not protuberant, about half the length of eyes, decidedly and obliquely narrowed to neck. Prothorax lævigata, transverse ( $1.4 \times 2$  mm.), convex, widest a little before middle; sides rotundate; apex truncate between angles; base arcuate-truncate; anterior angles widely rounded; lateral margins explanate, hardly advanced at anterior angles, sloping roundly to base behind posterior setigerous puncture; median line lightly impressed; basal part of prothorax depressed; elytra ovate ( $5.7 \times 3.5$  mm.); basal border extending laterally to width of base of prothorax with margins, its point of junction with lateral border marked but not angulate; apical curve lightly sinuate on each side.

Length 7.7-8.7, breadth 2.9-3.5 mm.

*Hab.*—Geraldton and Mullewa (Lea).

Very closely resembling *A. leai*, Sl., with which it is almost identical in colour, and from which it does not differ in any feature of importance. I have regarded it as a distinct species on account of the following differences:—Eyes a little more prominent; orbits smaller and less swollen behind eyes; prothorax more transverse, more strongly and evenly rounded on sides, the lateral margins more widely explanate and terminating more abruptly and a little further in front of base—thus forming a more strongly marked juxta-basal sinuosity; elytra a little less

convex, apical curve more widely rounded and less strongly sinuate on each side, the humeral curve of the border more widely rounded, not angulate.

Tribe *BEMBIDIINI*.

Genus *BEMBIDIUM*.

71. *B. JACKSONIENSE*, Guér.; l.c. Sp. 953. *Hab.*—Pinjarrah, Geraldton and Mullewa (Lea).

72. *B. ERRANS*, Blkb.; l.c. Supp. Sp. 7575. *Hab.*—Beverley (Lea).

Genus *TACHYS*.

73. *T. FROGGATTI*, Sl., P.L.S.N.S.W. 1896, xxi. p. 362. *Hab.*—Upper Ord and Behn Rivers (Helms).

74. *T. HELMSI*, n.sp.

Robust, oval, convex; prothorax strongly rounded on sides, about as wide at base as at apex; elytra ovate, six inner striae strongly impressed on each elytron, lateral stria and marginal channel strongly impressed, interstice between them convex, recurved stria of apex deeply impressed. Black with faint greenish tinge; elytra bimaculate about posterior third; maculae, legs, antennae and palpi testaceous.

Head wide, lightly and shortly biimpressed; eyes prominent. Prothorax convex, transverse, a little wider than head, widest a little before middle; sides strongly and roundly narrowed anteriorly, strongly narrowed posteriorly, subsinuate before base; anterior angles obtuse, not marked; basal angles sharp; border narrow; a strong transverse impression across base. Elytra much wider than prothorax, convex; sides rounded; shoulders rounded; striae simple, first entire, five succeeding ones only impressed on disc (not attaining base); interstices convex.

Length 3, breadth 1.3 mm.

*Hab.*—Upper Ord River (Helms).

In facies this species most resembles *T. striolatus*, MacL. According to the table of species I have given in P.L.S.N.S.W.

1896, xxi. p. 357, it would be placed with *T. froggatti*, Sl., from which it differs by its larger size, more convex shape, prothorax more convex and more narrowed to base, &c. *T. buprestioides*, Sl., differs by having the elytra 4-maculate and the fifth stria reaching the base; *T. striolatus* is a smaller species with elytra 5-striate and 4-maculate; *T. bipustulatus*, MacL., has the prothorax less rounded on the sides and much wider across the base.

75. *T. STRIOLATUS*, MacL.; l.c. Sp. 958. *Hab.*—Behn River (Helms).

76. *T. SPENCERI*, Sl., Rept. Horn Scientific Exped., Zool. p. 380. *Hab.*—Behn and Upper Ord Rivers (Helms).

77. *T. BISTRIATUS*, MacL.; l.c. Sp. 948. *Hab.*—Upper Ord River (Helms).

78. *T. FLINDERSI*, Blkb.; l.c. Supp. Sp. 7564. *Hab.*—Swan River, Darling Ranges, Pinjarrah (Lea); Behn River (Helms).

79. *T. HABITANS*, Sl., P.L.S.N.S.W. 1896, xxi. p. 368. *Hab.*—Swan River, Darling Ranges, Pinjarrah, Bridgetown (Lea).

80. *T. OVATUS*, MacL.; l.c. Sp. 954. *Hab.*—Behn and Upper Ord Rivers (Helms).

81. *T. UNIFORMIS*, Blkb.; l.c. Supp. Sp. 7572. *Hab.*—Beverley (Lea).

82. *T. ATRICEPS*, MacL.; l.c. Sp. 944. *Hab.*—Upper Ord River (Helms).

83. *T. LINDI*, Blkb.; l.c. Supp. Sp. 7566. *Hab.*—Swan River, Darling Ranges, Beverley (Lea); var. Upper Ord River (Helms).

*Note.*—*T. ectromioides*, Sl., P.L.S.N.S.W. 1896, xxi. p. 359, is probably not a West Australian species; the type specimen was sent to me by Mr. Lea from West Australia ticketed "Donnybrook, W.A.," but I have found specimens in the collection of the Agricultural Department of New South Wales marked "Richmond River (Lea)"; this makes me think that the original specimen had a wrong locality attached to it by some error.

## Tribe FERONINI.

## Genus NOTONOMUS.

84. *N. MEDIOSULCATUS*, Chaud.; l.c. Sp. 815; = *Adetipa punctata*, Casteln.; = *Omasus occidentalis*, Casteln.; = *Omasus satanns*, Casteln. (?) *Hab.*—Swan River, Pinjarrah, Donnybrook, Bridgetown (Lea).

Judging from the specimens sent to me by Mr. Lea, this species has a wide range in West Australia, and is very variable. Though I have not examined specimens from King George's Sound, and consequently have not identified *Omasus satanns*, Casteln., with certainty, *N. mediosulcatus* seems to vary sufficiently to include it, and I have therefore (with just a little doubt) added it to the synonymy given by Baron Chaudoir.

The following varieties before me may be noted :—

A. ♂. Head and prothorax black, elytra greenish-metallic. Agrees with description of *N. mediosulcatus*. (Bridgetown).

B. ♀. Head and prothorax black, elytra obscurely purple; compared with "A" a little more convex, and with prothorax and elytra a little wider and more rounded on sides. Agrees with description of *Adetipa punctata*. (Bridgetown).

C. ♂. Black with very obscure purple reflections on elytra. (Swan River).

D. ♂. Wholly black. (Pinjarrah).

E. ♀. Prothorax black with obscure purple reflections; elytra purple, metallic. (Swan River).

## Genus SARTICUS.

85. *S. IRIDITINCTUS*, Chaud.; l.c. Sp. 866. *Hab.*—Swan River, Darling Ranges, Pinjarrah (Lea).

86. *S. ISCHNUS*, Chaud.; l.c. Sp. 859 (*et* Supp. p. 42). *Hab.*—Bridgetown, Mount Barker (Lea).

## Genus LEPTOPODUS.

By an error the position of the punctures on the third interstice of the elytra has been wrongly stated in the table of genera I



have given in P.L.S.N.S.W. 1894, (2), ix. p. 414: the position of these punctures in *Leptopodus* is—the two anterior on course of third stria, posterior on course of second stria.

87. *L. IRIDIPENNIS*, Casteln.; l.c. Sp. 883. *Hab.*—Bunbury, Bridgetown (Lea); Albany (Helms).

Genus *CHLÆNIOIDIUS*.

88. *C. PROLIXA*, Erichs.; l.c. Sp. 881. *Hab.*—Swan River, Beverley, Pinjarrah, Mount Barker (Lea).

Genus *LOXANDRUS*.

89. *L. LONGIFORMIS*, n.sp.

Narrow, elongate, dorsal surface depressed; head biimpressed; prothorax not wide, subcordate, not punctate near sides of base, base and apex of about equal width; elytra parallel on sides, strongly crenulate-striate, third interstice unipunctate about middle on course of second stria. Piceous or piceous-brown, legs reddish-piceous, antennæ ferruginous.

Head long; mandibles prominent; frontal impressions well marked, shallow, elongate-foveiform; eyes with posterior part of orbits reniform, rather prominent. Prothorax small ( $2 \times 2.3$  mm.), widest just behind anterior marginal puncture, smooth, depressed on disc, sides rounded (feebly subangulate at widest part), roundly narrowed to apex, more obliquely so to base; anterior margin emarginate; anterior angles marked, slightly prominent; base truncate; basal angles widely rounded; border narrow, reflexed on sides, not reaching middle of anterior margin; lateral channel canaliculate, well marked at basal angles; median line lightly impressed; lateral basal impressions long, deep; posterior marginal seta placed on border near basal angles,—the puncture from which it rises hardly perceptible, the margin not widened to receive it. Elytra narrow ( $5.4 \times 3.1$  mm.), depressed on disc, sharply declivous on sides, these lightly rounded, almost parallel in middle, base much wider than base of prothorax; humeral angles rounded; apical curve feebly sinuate on each side; striae



deeply impressed; interstices convex, carinate near apex; border narrow. Mesosternal episterna punctate. Metasternum on sides, and episterna strongly punctate. Ventral segments punctulate on sides, the punctures obsolete on apical segments.

Length 7·3-10, breadth 2·5-3·2 mm.

*Hab.*—Upper Ord and Behn Rivers (Helms).

The difference in facies and the absence of an iridescent tinge differentiate this species from *L. iridescens*, Casteln., and its allies; among the species known to me it most resembles *L. atronitens*, MacL., from which it differs by being more elongate (especially the elytra) and by the absence of any puncturation at the sides of the prothorax near the base, &c. It is winged; the base of the prothorax is just a shade narrower than the apex.

#### Genus SIMODONTUS.

The study of the genus *Simodontus* has been rendered extremely difficult by the uselessness of Baron Chaudoir's descriptions of his species; the following note on the species of his first division, viz., those with the metasternal episterna long, may be useful, and should be read in conjunction with the remarks of the Rev. Thos. Blackburn on the genus *Simodontus*.\*

It may be assumed that *S. australis*, Dej., is a Victorian species found about Melbourne, and that *Argutor antipodus*, Mots., (described as from the neighbourhood of Melbourne) is synonymous with it. *S. convexus*, Chaud., is evidently very near *S. australis*, but doubtless different by its more convex shape, larger head, and less prominent eyes; I believe I have seen it from Victoria. *S. transfuga*, Chaud., seems to me very likely to be *S. murrayensis*, Blkb., (rather than *S. elongatus*, Chaud., as suggested by Mr. Blackburn); being the only lightly striate species with elongate metasternal episterna known to me. *S. orthomoides*, Chaud., and *S. elongatus*, Chaud., I have not been able to identify, nor do I think I have ever seen either. I have seen the types of Sir William Macleay's *Argutor foreipennis*, *A. nitidipennis* and *A.*

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\* P.L.S.N.S.W. 1889 (2), iv. pp. 732-738.

*oodiformis*; all are members of Chaudoir's genus *Opryosternus* which I merge with *Prosopogmus*. *Argutor inedita*, Casteln., which Mr. Blackburn has suggested may be a *Leptopodus*, or a *Simodontus*, does not appear to me, from the description, to belong to either of these genera. The description, if accurate in ascribing to it two impressions at each side of the prothorax and two punctures on the third interstice of the elytra, indicates that it is likely a *Hormochilus*; its cordiform prothorax would exclude it from *Simodontus*, and the two basal impressions of the prothorax from *Leptopodus*; it is fairly well described, and could doubtless be identified if specimens from the original locality were before one.

90. *S. AUSTRALIS*, Dej. (?)

A species which seems to be the commonest *Simodontus* in South West Australia so closely resembles a specimen in my collection from Melbourne, which I regard as *S. australis*, that I cannot separate it; the only difference I can notice is that the basal border of the elytra is slightly more prominent in the Melbourne specimen; it seems certainly the western representative of *S. australis*, and therefore I have placed it under that name; I do not know if it is the species which Mr. Blackburn has described as *S. australis*, Dej., but most likely it is. The following is a short description:—

Oval, subconvex; head moderate; prothorax lævigata, transverse; elytra with third stria hardly narrower than fourth; prosternum margined on base; mesosternal episterna punctate, metasternal episterna elongate. Black (or piceous-black), shining; under surface piceous; legs and antennæ brownish.

Head smooth, convex, lightly transversely impressed posteriorly; eyes prominent, enclosed at base; prothorax transverse ( $1.8 \times 2.4$  mm.), widest about middle, very lightly narrowed to base, strongly narrowed to apex, depressed on disc; sides lightly rounded; apex deeply emarginate; anterior angles prominent, obtuse; base truncate-emarginate; basal angles rounded; border narrow, reaching nearly to middle on anterior margin and to

peduncle on each side of base; a curved linear impression on each side of peduncle (outer basal impression obsolete). Elytra subconvex ( $4.2 \times 2.7$  mm.); sides lightly rounded, a little narrowed to shoulders; striae moderately impressed; interstices not convex, second widest, 3-6 not differing greatly in width at base, lateral interstice becoming convex towards base; basal border arcuate on posterior margin, not dentate at humeral angles; lateral border reflexed.

Length 6.5-7, breadth 2.4-2.7 mm.

*Hab.*—Swan River, Rottnest Island, Beverley, Bridgetown (Lea).

*Note.*—The specimens from Bridgetown are even in size (7 mm.), while those from Swan River, Rottnest Island, and Beverley are smaller, and appear narrower (especially the prothorax); they also have the elytra less strongly striate, and with the external angles of the basal border a little more marked, but I cannot regard them as a different species, though West Australian collectors may ultimately prove them to be so, or at least entitled to rank as a variety.

91. *S. SEXFOVEATUS*, Chaud.; l.c. Sp. 905.

I believe the species described below to be *S. sexfoveatus*, Chaud., and that the original description was founded on an old specimen which had undergone a lengthened immersion in alcohol (such a specimen is in my possession, given to me by Mr. Masters as from King George's Sound). If I am right in my identification of this species, the habitat "Queensland," given by Count de Castelnau, who sent the original specimen to Baron Chaudoir, must have been erroneous. Thinking the original description faulty, as founded on an inferior specimen, I give the following from fresh specimens:—

Oval, subdepressed; head small, smooth; eyes prominent; prothorax lævigata, subquadrate, much wider across base than apex, elytra striate, interstices depressed, third narrower than fourth; prosternum margined on base, mesosternal episterna punctate, metasternal episterna elongate. Piceous-black, subiri-

descent; under surface piceous-brown; tibiae, tarsi and antennae ferruginous.

Prothorax transverse ( $1.5 \times 2$  mm.), widest about middle, hardly narrowed to base, gently but decidedly narrowed to apex; sides lightly rounded; apex strongly emarginate; anterior angles prominent, obtuse; base truncate-emarginate; basal angles obtuse; base longitudinally impressed on each side of peduncle; external basal impression wide, feebly marked. Elytra oval, hardly wider than prothorax ( $3.5 \times 2.1$  mm.), lightly convex; sides very lightly rounded, hardly narrowed to shoulders; striae well marked; interstices depressed on disc, those on sides convex towards apex, second and fourth wide, third much narrower, hardly wider than first; basal striole of second interstice not long; punctures of third interstice strongly impressed; basal border arcuate on posterior margin, with external angles lightly marked.

Length 5.8-6.5, breadth 2.1-2.5 mm.

*Hab.*—Bridgetown, Donnybrook (Lea).

In facies almost exactly resembling the small specimens of *S. australis*, Dej., from Swan River, but differing by the narrow third interstice of the elytra with its subfoveiform punctures; the fifth interstice, though wider on the disc than the third, becomes equally narrow at the base; it is a marked character of this species that the third and fifth interstices are much narrower at the base than the fourth and sixth.

92. *S. OCCULTUS*, n.sp.

Oval, robust; head large, smooth; prothorax subquadrate, wider across base than apex; elytra strongly striate, interstices convex, humeral angles marked; prosternum margined on base; episterna of mesosternum punctate, of metasternum short. Piceous-black; under surface and legs reddish-piceous, antennae ferruginous.

Head convex, not narrowed or transversely impressed behind eyes, these convex, not prominent, enclosed behind; prothorax convex, anteriorly transverse-quadrate ( $2.1 \times 2.5$  mm.), lightly narrowed to base, more strongly and roundly narrowed to apex; sides lightly rounded; apex lightly, widely and evenly emarginate; anterior angles obtuse, not prominent; base truncate-emarginate;

basal angles obtuse; median line well-marked on disc; a longitudinal impression on each side of peduncle, external basal impression wanting; posterior marginal seta placed in a foveiform puncture a little within basal angle. Elytra oval ( $4.5 \times 3$  mm.); sides rounded; base truncate; basal border arcuate on posterior margin, prominent (shortly subdentate) at humeral angles; basal striae of second interstice elongate.

Length 8, breadth 3 mm.

*Hab.*—Mount Barker (Lea, one specimen).

This species is readily distinguished from the other described Australian species with short metasternal episterna by its more elongate form, the elytra narrower, less strongly rounded on the sides, more deeply striate and with convex interstices. It is evidently allied to *S. picescens*, which Chaudoir described as from the Philippine Islands, at the same time indicating that he suspected it might be from Australia. It agrees with *S. picescens* (from the description) in its short metasternal episterna, and the striation of the elytra; but apparently differs by its larger size, and the elytra wider than the prothorax. The close resemblance that seems to exist between *S. occultus* and *S. picescens* lends additional force to Chaudoir's suspicion that Australia is the true habitat of *S. picescens*.

93. *S. LEAI*, n.sp.

Robust, oval, short; head convex, eyes globose; prothorax transverse, wider at base than apex, margins explanate near basal angles; elytra truncate-cordate, lightly striate, third interstice tripunctate along course of third stria; episterna of metasternum short. Reddish-piceous-brown.

Head lævigata, large, shortly and strongly biimpressed between antennæ; clypeal suture strongly impressed; head bordered in front of eyes above base of antennæ, this border defined by a light preocular sulcus; space between frontal impressions and preocular sulcus convex. Prothorax lævigata, transverse ( $1.5 \times 2.1$  mm.); sides rounded; apex lightly and widely emarginate; anterior angles widely obtuse; base truncate; posterior angles obtuse,

decidedly marked; median line lightly impressed; two short well defined basal impressions placed in a wide depression on each side. Elytra short ( $3.5 \times 3$  mm.), lightly convex; basal border meeting lateral border at humeral angle in a short hardly denticiform prominence; striae at base of second interstice punctiform; interstices depressed.

Length 6, breadth 3 mm.

*Hab.*—Geraldton (Lea, "on sea beach").

The other described species with which this species is allied by the short metasternal episterna and lightly striate elytra are *S. aeneipennis*, Chaud., and *S. fortnumi*,\* Casteln., neither of which is available to me for comparison with *S. leai*; it is evidently a proportionately shorter and more compact species than either of these; the prominent humeral angle of the elytra should help to distinguish it from *S. fortnumi*.

#### Genus PEDIMORPHUS.

##### 94. *P. ELONGATUS*, n.sp.

Narrow, elongate, lightly convex; prothorax subcordate, finely punctate near base; elytra parallel, strongly declivous to apex, striate, third interstice impunctate. Piceous-black, legs reddish-piceous.

Head convex, smooth; front lightly biimpressed; the impressions short, diverging backwards; eyes convex, not prominent. Prothorax a little broader than long ( $1 \times 1.25$  mm.), widest rather before the middle; sides lightly rounded, lightly and roundly narrowed to apex, gently and obliquely narrowed to base; apex lightly emarginate; anterior angles obtuse, not prominent; base sloping gently forward on each side of peduncle; basal angles obtuse, lightly marked; border very narrow; median line lightly impressed; a short lightly marked longitudinal basal impression on each side. Elytra long ( $2.8 \times 1.6$  mm.), parallel on sides; humeral angles widely rounded; apical curve obsoletely sinuate

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\* Mr. Blackburn has considered *S. curtula*, Chaud., a synonym of *S. (Harpalus) fortnumi* (P.L.S.N.S.W. 1889 [2], iv. p. 735). In this I concur.



on each side; striæ strongly impressed, finely and closely punctate; no striae near base; interstices depressed, ninth punctate; lateral border narrow, meeting basal border in an open curve.

Length 5, breadth 1.6 mm.

*Hab.*—Beverley (Lea). This species is at once distinguished from *P. planiusculus*, Chaud., by its narrower and more convex form, and by having the posterior third of the prothorax covered with a fine dense puncturation.

#### Genus DARODILIA.

##### 95. *D. EMARGINATUS*, n.sp.

Robust, convex; body not pedunculate; head shortly but decidedly biimpressed; prothorax convex, cordate, a little narrower across base than apex; elytra ovate, strongly striate, base emarginate; prosternum with episterna lævigata; labrum emarginate; mandibles prominent, decussating. Black.

Head convex, declivous to labrum; a short deep outwardly curved impression on each side of front; clypeal suture connecting apices of frontal impressions; eyes round, convex. Mentum widely but not deeply emarginate; lobes short, obtuse at apex; sinus lightly oblique on sides, middle shortly and widely advanced. Palpi: maxillary with second joint rather stout, arcuate, third shorter, cylindrical, thickened to apex, terminal longer than penultimate, truncate-oval; labial with two terminal joints about equal, rather elongate, penultimate slender, bisetose, terminal oval, lightly truncate. Prothorax transverse, subcordate (1.7 × 2 mm.); sides strongly rounded; apex truncate; anterior angles obtuse, lightly marked; base truncate in middle, sloping lightly forward on each side; basal angles obtuse, a little marked; border reflexed, shortly subsinuate before basal angles; median line strongly impressed on disc; a single deep impression on each side of base. Elytra ovate (3.7 × 2.4 mm.), convex, steeply declivous to base; apex lightly emarginate on each side; base emarginate; shoulders a little advanced, lightly marked; sides subparallel in middle, rounded to base; striæ deep, seventh lightly marked (except towards apex); interstices lightly convex; lateral border



narrow, reflexed; basal border weak, joining lateral border at humeral angle without any projection. Prosternum bordered on anterior margin. Metasternal episterna narrow, elongate. Ventral segments impunctate, three apical ones transversely sulcate. ♂ with three basal joints of anterior tarsi lightly dilatate and squamulose beneath.

Length 6.5-7.5, breadth 2.4-2.6 mm.

*Hab.*—Upper Ord River (Helms).

A distinct species, which is differentiated thoroughly from all the previously described species of *Darodilia* by having the head strongly biimpressed; the sides of the prothorax subsinuate before the base; the elytra with six strongly impressed striae on each, and the base emarginate.

#### Genus ABACETUS.

96. A. MACLEAYI, Blkb.; l.c. Supp. Sp. 7495. *Hab.*—Upper Ord River (Helms). Seems a slight variety.

#### Tribe LICININI.

Having a new genus to add to the Licinini, it has seemed advisable to offer a tabular list of the Australian genera belonging to the tribe, more especially as some of these are now referred to other tribes.

*Lestignathus* seems certainly to belong to the Licinini notwithstanding that it has been referred to the Platynini on the high authority of Dr. G. H. Horn (Trans. Am. Ent. Soc. 1881, ix. p. 143); it is nearly allied to *Lacordairia*, the anterior tarsi of the ♂ being as in the Licinini, not as in the Platynini. I would draw attention to Dr. Horn's remark on the mentum of *Lestignathus*—"I observe that the suture between the mentum and its support is as completely obliterated as in *Enceladus*. It is the only instance known to me of this character in the present [Platynini] or the preceding tribe" [Licinini]. This, however, occurs to a more or less degree in the genera *Lacordairia*, *Siagonyx*, *Platylytron*, *Microferonia* and *Hormacrus*.

*Lacordairia* is a genus of the Licinini; I have identified *L. proxima*, Casteln., from named specimens in the Howitt Collection, and regard it as typical of the genus.

*Platylatron* is evidently a member of this tribe; the absence of an internal plica interrupting the margin of the elytra posteriorly would in itself prevent its coming into the Panagæini, to which tribe Sir William Macleay referred it.

*Table of Genera.*

A. Mentum joining gulæ without support at base.	
B. Antennæ with two basal joints glabrous.....	LESTIGNATHUS.
BB. Antennæ with three basal joints glabrous.	
C. Metasternal episterna quadrate (short).	
D. Labrum deeply excised, prosternum not margined at base.....	LACORDAIRIA.
DD. Labrum short, sinuate-emarginate; prosternum margined at base.....	SIAGONYX.
CC. Metasternal episterna decidedly longer than broad.	
E. Apical curve of elytra sinuate on each side...	HORMACRUS.
EE. Apical curve of elytra without a sinuosity on each side.	
F. Size large, fourth joint of antennæ shorter than third and fifth.....	PLATYLYTRON.
FF. Size small, fourth joint of antennæ a little longer than third.....	MICROFERONIA.
AA. Mentum supported at base by a submentum.	
G. Labial palpi with penultimate joint bisetose in front, right mandible with upper side raised into a prominence at base (preceded by a deep notch).....	PHYSOLESTHUS.
GG. Labial palpi with penultimate joint plurisetose in front, right mandible ordinary.....	DICROCHILE.

HORMACRUS, n.gen.

*Head* long, narrow, convex; clypeus emarginate, not covering basal membrane of labrum in middle, a setigerous puncture on each side.

*Eyes* distant from buccal fissure.

*Labrum* short, subtruncate (anterior margin lightly bisinuate), quadrisetose (a large setigerous puncture at each lateral angle and a small one on each side of the slightly prominent middle).

*Mandibles* with apex wide and deeply emarginate.

*Antennæ* slender, filiform; three basal joints glabrous, basal joint stout, rather long—not as long as two succeeding together, second joint about half the length of third, others equal.

*Mentum* not divided from gulæ at base, concave, deeply emarginate; sinus edentate.

*Palpi*: labial with penultimate joint shorter than terminal, cylindrical, bisetose in front, terminal joint swollen, pyriform, truncate at apex, sparsely setose; maxillary with second joint long, stout, subcylindrical, penultimate shorter than terminal, slender, cylindrical, lightly incrassate, terminal rather stout, oblong-oval.

*Prothorax* subquadrate with sides and angles rounded, widely impressed on each side of base; lateral margins widely explanate posteriorly; posterior marginal puncture on edge a little before basal angle.

*Elytra* very wide, apical curve short, widely sinuate on each side; a short striole at base of first interstice.

*Prosternum* with intercoxal part narrow, bordered; basal declivity very narrow in middle.

*Mesosternum* concave between coxæ.

*Metasternum* as long between coxæ as length of posterior coxæ, narrow and pointed between intermediate coxæ; episterna much longer than broad.

*Legs* (♀) long, slender: tarsi setigerous beneath; anterior with joints dilatate, successively shorter, penultimate joint small, cordate.

Allied to *Platylytron* from which it differs by the shape of the palpi and mentum, the marginate prosternum, the elytra sinuate on each side of apex, &c.

97. *H. LATUS*, n.sp.

♀. Alate, wide, lightly convex; head small; prothorax small, transverse; elytra wide, striate, third interstice bipunctate. Black, shining.

Head lightly biimpressed between antennæ; eyes convex, prominent, enclosed behind. Prothorax transverse ( $2.6 \times 3.2$  mm.), much wider across base than apex; sides rounded; apex bordered, emarginate; anterior angles rounded, not marked; basal angles widely rounded; lateral margins explanate, slightly rugose-punctate; median line lightly marked; a wide depression on each side of base. Elytra nearly twice as wide as prothorax ( $8.2 \times 6$  mm.), widest rather behind middle; shoulders rounded; apex wide; striæ strongly impressed, seventh not lighter than others; interstices lightly convex, eighth wider than seventh, ninth narrow on sides, wide towards apex, seriate-punctate, the punctures wide apart in middle; border reflexed; marginal channel wide.

Length 13, breadth 6 mm.

*Hab.*—Mount Barker (Lea, one specimen).

#### Genus PLATYLYTRON.

98. *P. AMPLIPENNE*, MacL.; l.c. Sp. 540. *Hab.*—Mount Barker (Lea).

#### Genus MICROFERONIA.

I would refer to this genus *Lacordairia anchomenoides*, Casteln., *L. argutoroides*, Casteln., *L. marginata*, Casteln., and *Badister anchomenoides*, MacL. The episterna of the metasternum vary slightly in length in different species, but are always longer than broad. It may be noted that here the apical joint of the maxillary palps is inserted rather obliquely on the penultimate, suggesting a remote affinity to the Panagæini; this is well seen in *M. marginata*, Casteln.

99. *M. ADELAIDÆ*, Blkb.; l.c. Supp. Sp. 7551. *Hab.*—Bridgetown (Lea).

I have submitted the single example of this species sent by Mr. Lea to Mr. Blackburn's inspection, and he has identified it as *M. adalaidæ*.

100. *M. CINCTIPENNIS*, n.sp.

Subconvex, very finely shagreened; head small, mandibles widely bifid at apex; labrum triangularly excised, quadrisetose

prothorax depressed, transverse, wider at base than apex; elytra finely striate, first stria bifurcating near base. Piceous-black; prothorax on sides and elytra on whole circumference with narrow ferruginous margin; mandibles, labrum, clypeus and base of antennæ ferruginous; under surface piceous; inflexed margins of elytra and femora testaceous; tibiæ, tarsi, antennæ and palpi brownish.

Head short, convex, finely shagreened; mentum not divided from gulæ by a raised submentum; eyes large, convex, a little distant from buccal fissure. Prothorax closely applied at base to base of elytra, lævigata, transverse ( $1.3 \times 1.8$  mm.), widest before middle, lightly and roundly narrowed to apex, very little narrowed to base; apex deeply emarginate, finely bordered; anterior angles obtuse; base truncate; posterior angles widely obtuse; border lightly reflexed on sides, wanting on middle of base; median line fine; a very shallow wide basal impression on each side. Elytra oval ( $3.9 \times 2.5$  mm.), lightly convex; base hardly wider than base of prothorax; humeral angles obtuse; apical curve even; striæ finely impressed, simple; interstices depressed, third bipunctate on disc, ninth narrow, wider to apex, seriate-punctate; a single puncture on seventh stria near apex; border reflexed.

Length 6, breadth 2.5 mm.

*Hab.*—Bridgetown (Lea).

Differs from *M. adelaidæ*, Blkb., (the type of the genus), by its much larger size, its upper surface not iridescent, &c. It is like *M. (Lacordairia) marginata*, Casteln., but more depressed, the prothorax a little more transverse and dilatate at widest part, the elytra less nitid, &c. *M. (Badister) anchomenoides*, MacL., is an iridescent species a little larger and proportionately a little narrower than *M. cinctipennis*; it also has the metasternal episterna a little longer, and is without the light-coloured margins (and inflexed margins) of prothorax and elytra. *M. (Lacordairia) anchomenoides*, Casteln., and *M. (Lacordairia) argutoroides*, Casteln., are unknown to me in nature.

## Genus DICROCHILE.

101. *D. GORYI*, Boisd.; l.c. Sp. 913. *Hab.*—Swan River, Rott-nest Island, Pinjarrah, Mount Barker (Lea).

## Tribe PLATYNINI.

## Genus PLATYNUS.

102. *P. MARGINICOLLIS*, MacL.; l.c. Sp. 926. *Hab.*—Swan River, Rottnest Island (Lea).

## Genus PRISTONYCHUS.

103. *P. AUSTRALIS*, Blkb., P.L.S.N.S.W. 1888, (2) iii. p. 811. *Hab.*—Swan River (Lea).

## Tribe ODACANTHINI.

## Genus EUDALIA.

104. *E. WATERHOUSEI*, Casteln.; l.c. Sp. 62. *Hab.*—Upper Ord River (Helms).

## Tribe LEBIINI.

The limits of the tribe Lebiini as used in this paper are very wide, and include forms so diverse that some of them might be regarded with advantage as representing different groups, or even tribes. In the table which follows I have endeavoured to divide the tribe into natural groups (mostly agreeing with subdivisions of former authors), and have indicated these groups by the use of capital letters, small letters being used to denote minor divisions between allied genera. It is hoped this table may render the recognition of the Australian genera more easy than is the case at present. By carefully comparing and estimating the relative values of the major divisions given in the table, and considering them in relation to the groups already in use among the Lebiini, some natural groups among the Australian Lebiini might have been suggested; but when a named group is proposed it is incum-





- j. Head obliquely narrowed behind eyes..... DIABATICUS.\*  
 jj. Head abruptly constricted behind eyes ... PHILÆOCARABUS.\*  
 ii. Ungues simple..... COPTOGLOSSUS.  
 HH. Head not transversely impressed across occiput, tarsi sparsely setose on upper surface.  
 k. Elytra strongly striate; interstices convex, lævigata..... EUCALYPTOCOLA.  
 kk. Elytra substriate, finely and densely setose-punctate.  
 l. Penultimate joint of labial palpi shorter than apical (labrum short)..... AGONOCILA.  
 ll. Penultimate joint of labial palpi not shorter than apical..... PHILOPHILÆUS.  
 GG. Mesosternum wide and oblique between intermediate coxæ.  
 m. Antennæ inserted considerably in front of eyes, unguis simple..... HOMOTHES.  
 mm. Antennæ inserted near eyes, unguis serrate..... DROMIUS.  
 FF. Head convex, postocular prominences large, swollen (antennæ inserted considerably before eyes).  
 n. Metasternum large with elongate episterna; mentum dentate..... ANOMOTARUS.  
 nn. Metasternum small with short episterna; mentum edentate.  
 o. Upper surface glabrous, elytral interstices lævigata or at most minutely punctate ..... NOTOTARUS.  
 oo. Upper surface sparsely setose, elytral interstices coarsely punctate ..... LITHOSTROTUS,†  
 EE. Mandibles without scrobes externally, neck condyliiform..... PENTAGONICA.  
 DD. Mentum not divided from gulæ by a raised submentum..... SCOPODES.

\* *Diabaticus minor*, Blkb., *D. tumidiceps*, Blkb., *Philæocarabus umbratus*, Blkb., and *Ph. unimaculatus*, Blkb., do not belong to the genera to which they are assigned, nor do they fall into any described genus known to me; the position of all these species is near *Anomotarus*.

† = *Lestianthus*, Sl.

The following genera belonging to the Australian Lebiini are omitted from the table because they are unknown to me in nature (with the exception of *Eulebia* [two species] they contain but one species each):—*Lachnoderma*, *Eulebia*, *Idius*, *Ectinochila*, *Plagiotelum*, and *Taromorpha*.

*Cymindis* is a genus which I do not think occurs in Australia; *C. cenea*, Macl., is conspecific with *Anomotarus olivaceus*, Chaud.; *C. illawarrae*, Macl., is a very closely allied species, the distinctness of which appeared to me, when examining the types, doubtful, but which Mr. Masters regards as a good species. I should expect the third species, *C. crassiceps*, Macl., to prove a species of *Taromorpha*.

*Demetrius*, as exemplified by the Australian species referred to it, I cannot differentiate from *Xanthophœa*.

*Perigona* is not a Lebiid; it has been referred to the Platynini by Dr. G. H. Horn.

*Catascopus* is a genus I have not investigated, and on the position of which I have nothing to say.

*Plochionus humeralis*, Macl., and *P. semivittatus*, Macl., are both dealt with further on.

#### Genus XANTHOPHCEA.

105. X. VITTATA, Dej.; l.c. Sp. 127. *Hab.*—Bunbury (Lea).

106. X. ELONGATA, n.sp.

Narrow, elongate, depressed; head narrow, elongate; prothorax of equal length and breadth, sides strongly sinuate posteriorly, basal angles reflexed and sharply rectangular; elytra twice as wide as prothorax, a little narrower towards base, squarely truncate at apex, strongly striate, interstices hardly convex, glabrous, minutely punctate, third tripunctate (sometimes bipunctate). Testaceous; prothorax with a piceous longitudinal plaga on each side of disc; elytra with three piceous black vittæ and often infusate behind peduncle; antennæ ferruginous, basal joint pallid; (sutural vitta occupying first interstice of each elytron on basal third and spreading over second posteriorly; lateral vittæ extending nearer to apex than sutural one, occupying sixth, seventh and

part of eighth interstices on basal half, spreading inwards posteriorly on to fourth interstice; third interstice infusate and uniting the vittæ near apex of sutural one).

Head lævigata, longer than broad ( $1.7 \times 1.4$  mm.), convex, lightly transversely impressed behind eyes, constricted to a neck at base; front shortly biimpressed between antennæ; eyes convex, not very prominent; postocular processes about half length of eyes, projecting strongly and roundly from neck. Prothorax narrow, very little wider than head ( $1.5 \times 1.5$  mm.), hardly wider across base than apex; disc convex; margins wide, reflexed; sides lightly rounded on anterior two-thirds, widely sinuate at posterior fourth, a little outturned before base; apex hardly emarginate; anterior angles not advanced, roundly truncate; median line strongly impressed. Elytra nearly twice as wide as prothorax ( $5 \times 3.2$  mm.), widest about posterior third; base truncate, humeral angles widely rounded.

Length 7.5-9, breadth 3.2 mm.

*Hab.*—Rottneſt Island (Lea).

In a general way resembling *Trigonothops longiplaga*, Chaud., the elytra having a very similar pattern, but the discoidal pale markings more elongate. The conjunction of the black vittæ of the elytra at the apical fourth seems to differentiate it from all previously described species. The puncturation of the elytral interstices is much finer and less dense than in *X. vittata*, Dej. The third interstice of the elytra has two or three large punctures; the posterior puncture is placed in the infuscation connecting the sutural and lateral vittæ, the anterior about the basal fourth, the second nearer to the anterior puncture than to the posterior at about one-third of the distance between them.

*Note.*—Out of thirteen specimens before me only three had the full number of three punctures; the posterior puncture is always present, but there seems a tendency for either of the others to be wanting, so that usually the third interstice is only bipunctate.

107. *X. constricticeps*, n.sp.

Elongate, depressed; head long, lævigata, depressed between eyes, constricted at base to a condyliſorm neck; prothorax impunc-

tate, narrow, sides strongly sinuate posteriorly, basal angles reflexed and sharply rectangular; elytra strongly striate, interstices convex, glabrous, minutely punctate, third tripunctate. Wholly testaceous.

Head rather longer than broad ( $1.7 \times 1.6$  mm.), impunctate; front depressed, biimpressed before eyes; space between frontal impressions and sides obsoletely carinate; eyes prominent; sides strongly constricted to neck, swollen and sloping obliquely behind eyes; a wide foveiform impression on each side behind eyes above postocular prominences. Prothorax not perceptibly wider than head with eyes, not broader than long ( $1.8 \times 1.8$  mm.), hardly wider across base than apex, lightly declivous to sides on anterior half, longitudinally impressed on each side posteriorly at width of peduncle (the space between these impressions and margin depressed), transversely rugulose near sides, levigate on disc; sides lightly rounded on anterior two-thirds, widely sinuate at posterior fourth, a little outturned before basal angles; apex strongly emarginate; anterior angles rounded; median line deep, reaching from base to apex; border reflexed (greatly so posteriorly, hardly so near anterior angles). Elytra parallel ( $6 \times 3.5$  mm.), nearly twice as wide as prothorax; base sloping roundly to shoulders; striæ crenulate; third interstice tripunctate, fifth with a strongly marked setigerous puncture about posterior third and two much finer near anterior third.

Length 10, breadth 3.5 mm.

*Hab.*—Bridgetown (Lea).

Allied to *X. infusata*, Chaud., from which (and from *X. angustula*, Chaud.) it differs by its larger size, paler colour, impunctate head and prothorax, much finer puncturation of elytral interstices, &c.; from *X. satellites*, Blkb., another allied species, it differs by the want of piceous vittæ on the elytra, and the presence of setigerous punctures on the fifth interstice.

#### Genus TRIGONOTHOPS.

108. *T. (Plochionus) humeralis*, MacL., (?) P.L.S.N.S.W. (2, iii. 1888, p. 454.

The collection contains eighteen specimens of a species of *Trigonothops* (the largest species of the genus), of a general brownish colour, which, though a little larger than *Plochionus humeralis*, MacL., agrees too closely with the description of that species to be regarded as different, though a comparison with the type might possibly show it to be another species.

Its coloration may be described as follows:—Head reddish; prothorax reddish-brown, disc piceous; pattern of elytra similar to that of *T. longiplaga*, Chaud.,—lateral margin testaceous, ninth interstice brownish, first, sixth, seventh, and eighth interstices piceous-black (the black uniting at apical third), second, third and fourth interstices brownish on anterior two-thirds, apex brownish, clouded with piceous. The third interstice of the elytra is bipunctate near second stria (excluding a puncture at apical extremity); the anterior puncture found in *T. pacifica*, Erichs., near the third stria, is wanting. The posterior tarsi have the fourth joint smaller than in *T. pacifica*, and not spongiose beneath in both sexes as in that species. Length 9·5-10·5 mm.

*Hab.*—Rottnest Island, Geraldton and Mullewa (Lea).

109. *T. LONGIPLAGA*, Chaud.; l.c. Sp. 106. *Hab.*—Rottnest Island (Lea).

110. *T. OCCIDENTALIS*, Blkb., P.L.S.N.S.W. (2), vii. 1892, p. 66. *Hab.*—Mount Barker (Lea).

#### Genus ECTROMA.

The Rev. T. Blackburn when founding this genus did not diagnose it beyond noting a few differences and resemblances between it and *Sarothrocrepis*. The differences he gives are as follows:—"differs from *Sarothrocrepis* by the intermediate tarsi in the male not dilated nor bearing (except on the apical joint) a dense clothing of hairs beneath, by the shorter labrum, the apical joint of the labial palpi not 'compressed, dilated and truncate at the apex,' and the ligula longer as compared with its paraglossæ."\* None of these differences has seemed to me suitable for tabulating purposes.

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\* P.L.S.N.S.W. (2), iv. 1889, p. 711.

111. E. BENEFICUM, Newm.; l.c. Sp. 148. *Hab.*—Mount Barker, Bunbury, Rottnest Island (Lea); Albany (Helms).

112. E. PARVICOLLE, Blkb.; l.c. Supp. Sp. 7264. *Hab.*—Rottnest Island (Lea).

#### Genus PHLÆOCARABUS.

It is not unlikely that *Phleocarabus*, *Diabaticus* and *Notoxena* represent three allied types that may be worth maintaining as generically distinct from one another, but with the insufficient material at my disposal I unite *Notoxena*, proposed by Chaudoir for *Trigonothops nigricollis*, Macl.,\* with *Phleocarabus*, and only separate *Diabaticus* from *Phleocarabus* with doubt.

113. P. NIGRICOLLIS, Macl.; l.c. Sp. 107. *Hab.*—Upper Ord River (Helms).

As noted above, Chaudoir has pointed out that *Trigonothops nigricollis*, Macl., cannot remain in the genus *Trigonothops* on account of its tarsi having the fourth joint entire for one thing; however it appears to me that it may with fitness be placed in *Phleocarabus*.

114. P. (PLOCHIONUS) SEMIVITTATUS, Macl., P.L.S.N.S.W. (2), iii. 1888, p. 455. *Hab.*—Upper Ord River (Helms).

Three specimens that agree with the description of *Plochionus semivittatus*, Macl.; to me it seems congeneric with *Trigonothops nigricollis*, Macl., though differing greatly in the shape of the prothorax; I therefore place it with that species.

#### Genus AGONCHILA.

115. A. FROGGATTI, Macl.; l.c. Supp. Sp. 7267. *Hab.*—Upper Ord River (Helms).

I place this species in *Agonochila* because it has the palpi as in that genus and the intermediate tarsi without squamulæ beneath any of the joints.

116. A. CHAUDOIRI, n sp.

Depressed; head very finely shagreened and minutely punctate; prothorax large, deeply emarginate, posterior angles subrectangular;

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\* Bull. Mosc. 1877, lii. p. 225.

elytra striate, shagreened, setigero-punctate, base emarginate in middle and roundly advanced at shoulders. Head and disc of prothorax, tibiæ, tarsi and antennæ ferruginous (disc of prothorax and vertex sometimes infuscate); elytra piceous-black, apex, a narrow lateral margin and two large oval discoidal maculæ testaceous (discoidal maculæ extending across interstices 2-6, testaceous apical margin wide—much wider on interstices 1-4 of each elytron); femora and inflexed margin of elytra pale testaceous.

Head rather elongate, obliquely narrowed behind eyes; front depressed, widely and lightly biimpressed; eyes prominent, hardly globose. Prothorax much wider than head ( $1.3 \times 1.8$  mm.), widest just behind anterior third, depressed; disc shagreened, setigero-punctulate, finely rugulose; margins widely explanate, densely rugose-punctate, lightly upturned towards base; sides roundly subangulate at widest part, strongly roundly-obliquely narrowed anteriorly, lightly narrowed and subsinuate posteriorly; anterior margin deeply emarginate; anterior angles projecting a little, obtuse; base widely and feebly lobate in middle, obliquely truncate on each side; basal angles subrectangular, obtuse at summit; median line strongly impressed. Elytra much wider than prothorax ( $4 \times 3$  mm.), widest about posterior third, roundly truncate at apex; sides rounded, strongly and roundly widened behind humeral angles. Length 7.8, breadth 3.3.3 mm.

*Hab.*—Pinjarrah (♀), Mount Barker (♂), (Lea).

This species has a considerable superficial resemblance to *Trigonothops pacifica*, Erichs. It seems to agree so closely with the description given by Baron Chaudoir of the species he calls *A. (Lebia) mollis*, Newm., that I think it may be the species he had before him, but in that case I cannot agree with him in his identification of it as *A. mollis*, which is, from Newman's description, a species allied to and rather smaller than *A. lutosæ*, Newm., and, if so, having no resemblance to the species Chaudoir described as *A. mollis*. The description I have given is founded on specimens (♂) from Mount Barker; the ♀—judging from the specimens before me—has the prothorax infuscate and not so long as the ♂; it is possible the sexes of two slight varieties (but not,



I think, two species) may be represented by the specimens before me from Pinjarrah and Mount Barker respectively.

117. *A. RUFICOLLIS*, n.sp.

Depressed; head finely shagreened and minutely punctulate; prothorax short, smooth, lightly emarginate, middle of base hardly projecting, posterior angles obtuse; elytra lightly striate, shagreened and minutely punctulate. Head, prothorax, under surface, tibiae, tarsi and antennae ferruginous; elytra piceous-black, apex, a narrow lateral margin and two discoidal maculae testaceous; inflexed margin of elytra and femora pale testaceous (the maculae of the elytra variable in size, placed before middle, extending across interstices 2-6, suboval in shape with a shorter projecting part on fifth and sixth interstices; testaceous apical margin wide, projecting triangularly forward in middle).

Head not short; front depressed, not rugulose, lightly and widely impressed on each side; occiput convex; eyes globose, prominent. Prothorax transverse ( $1 \times 1.5$  mm.), widest at anterior third, a little convex, very finely shagreened and minutely setigeropunctate; explanate margins not wide, hardly rougher than disc; sides roundly narrowed anteriorly, obliquely narrowed posteriorly, not sinuate before basal angles; anterior margin lightly and evenly emarginate; anterior angles widely rounded; base roundly and weakly lobate in middle, sloping roundly obliquely forward to basal angle on each side; basal angles roundly obtuse; median line strongly impressed. Elytra much wider than prothorax ( $3.4 \times 2.5$  mm.), widest about posterior third, a little narrowed to base, roundly truncate at apex; base truncate on each side (shoulders hardly advanced); humeral curve of border wide, hardly subangulate.

Length 5-6, breadth 2-2.7 mm.

*Hab.*—Mount Barker (Lea).

Allied to *A. curtula*, Erichs., from which the following differences readily distinguish it:—The red colour of the prothorax; head less strongly punctate; prothorax much smoother, explanate margins not rugose, sides more evenly rounded, posterior angles widely obtuse; elytra proportionately narrower and more elongate,

their puncturation similar but finer. Very closely allied to *A. binotata*, White, (a specimen so named, from Tasmania, has been sent to me by the Rev. T. Blackburn, which evidently represents the species Chaudoir described as *A. binotata*, Wt.\*), but differing by being less darkly coloured; the head more minutely punctate; the prothorax less transverse, sides less strongly narrowed to base, basal angles less obtuse, base less lobate; elytra more strongly narrowed to base. Comparing *A. ruficollis* with a species from New Zealand, which is regarded by New Zealand coleopterists as *A. binotata*, Wt., which it closely resembles, the following differences may be noted: prothorax with apex a little more deeply emarginate, anterior angles less widely obtuse, base less lobate in middle, basal angles less marked, more obtuse; elytra less in the form of a rectangle, a little more narrowed towards the base, the humeral angles not so widely and evenly rounded, the discoidal maculæ wider.

*Note.*—I do not know which species—the Tasmanian or the New Zealand one—is the true *A. binotata*, Wt., and have not access to all the literature on the subject, so cannot say what evidence there is on the point, except that Chaudoir says at the end of his note on *A. binotata* that it inhabits the southern parts of Australia, and that he did not think it was found in New Zealand, as Blanchard had said. Under the circumstances a comparison of the two species may be of interest. The species of *Agonochila* found in New Zealand, which is closely allied to *A. binotata*, Wt., (as found in Tasmania), differs from that species by having the prothorax less narrowed to the base (apex evidently narrower than base), posterior angles much more marked, explanate lateral margins wider and more depressed; elytra similar, but with the ground colour darker.

118. *A. FASCIATA*, n.sp.

Small, subdepressed; head smooth, finely shagreened (a few minute punctures on front); prothorax small, lightly emarginate, posterior angles subrectangular; elytra substriate, shagreened.

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\* Ann. Soc. Ent. Belg. xii. p. 224.

densely and finely punctulate. Piceous-brown, occiput and explanate margins of prothorax more lightly coloured; elytra with reflexed margins, a wavy fascia on discoidal third of each and apex testaceous (the discoidal fasciæ extending from first to seventh interstices, narrow, of an irregular W-shape, sloping lightly obliquely backwards externally; the piceous ground colour of the elytra projecting sharply and triangularly into the apical testaceous margin about middle of each elytron); under surface rather infusate; coxæ, femora and base of antennæ testaceous; tibiæ, tarsi and antennæ (excepting base) darker.

Prothorax small, transverse ( $7 \times 1.2$  mm.), widest about anterior third; disc finely shagreened; lateral margins widely explanate, finely punctate; sides obsoletely angulate and setigero-punctate at widest part, strongly and roundly narrowed anteriorly, lightly narrowed posteriorly, usually subsinuate before basal angles; anterior angles obtuse; base obliquely truncate on each side; basal angles rectangular with summit rounded; median line strongly impressed. Elytra greatly wider than prothorax ( $2.4 \times 2$  mm.), lightly convex, finely setose and punctulate (the setæ very fine and short); striæ obsolescent; shoulders rounded; base declivous to peduncle.

Length 3.8-4.3, breadth 1.8-2 mm.

*Hab.*—Swan River, Rottnest Island, Mount Barker (Lea).

Nearly allied to *A. fenestrata*, Blkb., from which the markings of the elytra readily distinguish it; the elytra are more convex with the puncturation less marked; the prothorax is a little wider. It should be noted that instead of four setigerous punctures on the third interstice of the elytra, as is usual in the genus, only one is perceptible; it is placed a little in front of the apical pale margin (this being about the usual position of the second puncture from the apex); the anterior puncture usually so noticeable about the basal fourth of the third interstice seems quite wanting in this species.

119. *A. FENESTRATA*, Blkb.; l.c. Supp. Sp. 7275. *Hab.*—Mount Barker, Bridgetown, Bunbury (Lea).

*Note.*—One specimen from Bunbury has a small testaceous spot on each elytron near the suture, a little before the apex.

### Genus PHILOPHLÆUS.

Before describing the two new species of *Philophælus* contained in Mr. Lea's West Australian collection, I offer a table of the species known to me, followed by notes on some previously described species.

#### *Table of Species.*

- |  |   |
|--|---|
| I. Prothorax with more than two setigerous punctures on each lateral margin.   |   |
| A. Elytra with testaceous discoidal vittæ.   |   |
| B. Posterior margin of apical ventral segment plurisetose.   |   |
| c. Intermediate tarsi of ♂ with three basal joints squamulose beneath.   |   |
| d. Discoidal vittæ of elytra reaching base and extending nearly to apex.....   | <i>P. australis</i> , Dej.                                    |
| dd. Discoidal vittæ of elytra not reaching base and not extending backwards beyond posterior fourth.....                     | <i>P. distinguendus</i> , Ch.                                 |
| cc. Intermediate tarsi of ♂ with two basal joints only squamulose beneath.....   | { <i>P. eucalypti</i> , Germ.<br><i>P. laticollis</i> , Blkb. |
| BB. Posterior margin of apical ventral segment quadrisetose.   |   |
| e. Prothorax with apex lightly emarginate, discoidal vittæ hardly extending behind middle of elytra .....                    | <i>P. quadripennis</i> , Ch.                                  |
| ee. Prothorax with apex deeply emarginate (anterior angles advanced), discoidal vittæ extending behind middle of elytra.     |   |
| f. Prothorax with base arcuate in middle.  |   |
| g. Prothorax with sides lightly rounded and subangulate .....  | <i>P. monticola</i> , Blkb.                                   |
| gg. Prothorax with sides amplate and strongly rounded.   |   |
| h. Elytra with sutural apical angle rounded; ♂ with two basal joints of intermediate tarsi squamulose beneath                | <i>P. puberulus</i> , Ch.                                     |
| hh. Elytra with sutural apical angle sharply marked; ♂ with three basal joints of intermediate tarsi squamulose beneath..... | <i>P. australasia</i> , Ch.                                   |

- ff. Prothorax with middle of base truncate *P. truncatus*, Sl.
- AA. Elytra without pale vittæ on disc.
- i. Head large; prothorax not greatly wider than head, not deeply emarginate at apex, anterior angles lightly marked ..... { *P. planus*, Newm.  
*P. unicolor*, Ch.
  - ii. Head small, prothorax much wider than head.
  - j. Prothorax with apex lightly emarginate.
  - k. Prothorax with anterior angles widely rounded..... *P. occidentalis*, Blkb.
  - kk. Prothorax with anterior angles marked..... *P. opaciceps*, Blkb.
  - jj. Prothorax with apex deeply emarginate.
  - l. Prothorax with sides lightly rounded, base lightly lobate in middle..... *P. discorufus*, Sl.
  - ll. Prothorax with sides ampliate and strongly rounded, basal lobe strongly developed..... *P. immaculatus*, Ch.
- II. Prothorax with two setigerous punctures on each side.
- M. Testaceous discoidal vittæ of elytra continuous, extending behind middle.
  - n. Prothorax deeply emarginate at apex, testaceous discoidal vittæ of elytra uniting near apex.... { *P. intermedius*, Ch.  
*P. sydneyensis*, Blkb.
  - nn. Prothorax very lightly emarginate at apex, discoidal vittæ of elytra attenuate posteriorly and not inturned near apex... *P. confertus*, Blkb.
  - MM. Each elytron with a testaceous mark of varying shape on anterior part of disc and usually with apex or a small apical spot of same colour.
  - o. Discoidal testaceous plaga elliptical (narrow, elongate)..... *P. angulatus*, Ch.
  - oo. Discoidal testaceous markings irregular, extending from first to seventh interstices... *P. luculentus*, Newm.

*Notes on some previously described species of Philophlæus.*

*P. eucalypti*, Germ., = *P. grandiceps*, Chaud.—There seems no room for doubt but that Chaudoir was mistaken in his identification of *P. ecucalypti*, Germ. I concur with the Rev. T. Blackburn in assigning the name *P. eucalypti*, Germ., to the species which he has redescribed under that name (P.L.S.N.S.W. (2), iv. 1889, p. 712); and I believe that the species from Adelaide which Chaudoir described under the name of *P. grandiceps* is the same species.

*P. laticollis*, Blkb., is so closely allied to *P. eucalypti*, Germ., that the differences do not readily lend themselves to tabulation.

*P. ornatus*, Blkb., is allied to *P. eucalypti*, Germ.; it is unknown to me in nature.

*P. brunnipennis*, MacL., is unknown to me in nature; the description is so slight that it could only be identified by comparison with the type, or by the inspection of specimens from Gayndah.

*P. fuscipennis*, Germ.—There appears to me to be little doubt but that this species is synonymous with either *P. planus*, Newm., or *P. unicolor*, Chaud.; after a careful comparison of the unicolorous species in my possession I arrive at the conclusion that it is more likely to be identical with *P. unicolor* than with *P. planus*, but having only one specimen of *P. unicolor*, and that discoloured by age, and being ignorant of the range of the species, I hesitate to place *P. unicolor* under *P. fuscipennis* as a synonym. With a good series of specimens of *P. planus* and *P. unicolor* before me I believe the identity of *P. fuscipennis* could be established from Germar's description, the choice of which species it is being reduced to the two species mentioned above, with a balance of opinion in favour of its being *P. unicolor*.\*

*P. unicolor*, Chaud.—The differences between *P. unicolor* and *P. planus* are not readily tabulated, but it can be easily identified from Chaudoir's comparison of it with *P. planus* if both species are before one.

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\* Vide Rev. T. Blackburn's note on *P. fuscipennis*, P.L.S.N.S.W. (2), iv. 1889, p. 714.

*P. opaciceps*, Blkb.—In colour and general appearance this species almost exactly resembles the species tabulated above as *P. immaculatus*, Chaud., but it differs by having the prothorax less deeply emarginate at apex and with the middle of the base lightly and widely arcuate—not strongly lobed. The ♂ has two basal joints of the intermediate tarsi squamulose beneath; I have drawn Mr. Blackburn's attention to the fact that a male specimen of *P. opaciceps* which he sent me has two basal joints of the intermediate tarsi squamulose, and he has written in reply that such is the case, but that "in the type the squamæ seem to be wanting . . . and so I passed them over unnoticed." Further, he adds that the comparison he has made in his description of *P. opaciceps* between that species and *P. immaculatus*, Chaud., was not with the species I consider to be *P. immaculatus*, Chaud., (and which Mr. Blackburn now concurs with me in regarding as *P. immaculatus*, Chaud.), but with an undescribed species found in South Australia which has the prothorax less emarginate at apex than *P. opaciceps*, not more so, as is the case with *P. immaculatus*.

*P. immaculatus*, Chaud.—What I take to be *P. immaculatus*, Chaud., has in my single male specimen only two basal joints of the intermediate tarsi squamulose beneath, not three as said by Chaudoir. I have taken it at Mulwala and near Junee in N.S.W.

*P. obtusus*, Chaud., is unknown to me in nature; it is evidently allied to *P. angulatus*, but larger and with the posterior angles of the prothorax obtuse.

*P. maculatus*, Macl., I have not seen; it must resemble *P. obtusus* very closely, so closely, apparently, as to suggest to my mind its possible identity with that species. The description is useless, unless specimens from Gayndah were available, when, no doubt, it would be readily recognised.

*P. vittatus*, Macl., is probably near *P. angulatus*, Chaud., but very imperfectly described.

*P. luculentus*, Newm.—The Rev. T. Blackburn has sent me (as from the Victorian Mountains at source of Owen's River) under this name, a species (♀), which agrees with Chaudoir's description of *P. luculentus*, but is smaller (length 6·5 mm.). Another



example (♂) from Galston near Parramatta, has been given to me by Mr. A. M. Lea which has the intermediate tarsi not dilatate, but with two basal joints lightly squamulose beneath. I have not yet seen a *Philophlæus* with only the basal joint of the intermediate tarsi squamulose (and that densely)—the character on which Chaudoir established a separate group for *P. luculentus*.

*P. rectangularis*, Chaud., is very closely allied to *P. luculentus*; I have not seen it.

The following species, given in Masters' Catalogue as belonging to *Philophlæus*, do not in my opinion belong to that genus: *Lebia irrita*, Newm., *Lebia mollis*, Newm., *Philophlæus dubius*, MacL., *Philophlæus froggatti*, MacL.; all of them, excepting *P. dubius*, I would refer to *Agonochila*. *P. dubius* I would place in *Eucalyptocola* on account of the elytra being deeply striate with the interstices not punctate or pubescent; I have it from Dunoon on the Richmond River, N.S. Wales, and Mr. French has sent me specimens which he took in the mountainous district east of Melbourne.

120. *PHILOPHLÆUS TRUNCATUS*, n.sp.

Prothorax with apex deeply emarginate, base not lobed in middle, three setigerous punctures on each side; elytra vittate; apical ventral segment with four setæ at apex; intermediate tarsi of ♂ with two basal joints squamulose beneath. Head and prothorax reddish-testaceous; elytra fuscous, lateral margin and a wide discoidal vitta on each elytron testaceous; undersurface subtestaceous (a little infusate), abdomen with narrow fuscous lateral margin posteriorly; femora testaceous; tibiæ, tarsi and antennæ—excepting base—brownish.

Head depressed, sharply constricted behind eyes; front not rugulose, minutely punctate; eyes prominent. Prothorax widely transverse ( $1.7 \times 3.2$  mm.); lateral margins widely explanate, finely rugulose-punctate; sides strongly rounded, subangulate in middle; anterior margin deeply emarginate; basal curve rotundate, obsoletely trisinate; posterior angles faintly marked by posterior marginal puncture; anterior marginal puncture about half-way between middle one and anterior angle. Elytra wide ( $6 \times 4.6$  mm.), finely pubescent-punctulate, faintly striate, emarginate in

middle of base; shoulders advanced; rounded: sides lightly rounded.

Length 9-10, breadth 4.5-5 mm.

*Hab.*—Mount Barker (Lea).

This species may be distinguished from all other described species which have vittate elytra by the following characters in combination:—prothorax deeply emarginate at apex, not lobed at base, three setigerous punctures on each side; apical ventral segment with only four setæ. I believe it is the only species yet described with the base truncate. The discoidal vitta on each elytron does not curve inwards towards the suture at the apex; it resembles that of *P. distinguendus*, Chaud., but is wider, not so narrow at apex, and reaches nearer to the apex of the elytron.

121. *P. PLANUS*, Newm.; l.c. Sp. 174. *Hab.*—Geraldton and Mullewa, Beverley (Lea), Coolgardie.

122. *PHILOPHLEUS DISCORUFUS*, n.sp.

Prothorax deeply emarginate at apex, wider between anterior than between basal angles, five setigerous punctures on each side; elytra subparallel, substriate, densely punctulate; intermediate tarsi of ♂ with two basal joints squamulose beneath. Head and prothorax ferruginous-red; elytra piceous with a wide triangular space extending backwards from base on disc and a narrow lateral margin ferruginous; under surface and femora reddish-testaceous; sides and apex of abdomen infuscate; antennæ, tibiæ and tarsi piceous-red.

Head large, depressed, strongly constricted behind eyes; front lightly punctulate; eyes prominent. Prothorax widely transverse (1.6 × 2.9 mm.), widest before middle; sides subangulate at widest part, lightly and roundly-obliquely narrowed anteriorly, obliquely narrowed posteriorly with a wide faint sinuosity before posterior angles; lateral margins explanate, reflexed posteriorly, hardly rugulose, three or four conspicuous setigerous punctures on anterior half of each; anterior margin deeply emarginate; anterior angles prominent, obtuse, projecting out almost as far as eyes; posterior angles obtuse but marked; base arcuate, projecting a little backwards in middle, lightly sinuate on each side of peduncle. Elytra of ordinary shape (5.5 × 4.3 mm.); shoulders

rounded, not prominent; coarsely punctulate—the pubescence short, sparse, inconspicuous.

Length 9, breadth 4.3 mm.

*Hab.*—Beverley (Lea).

Differs from *P. planus*, Newm., by colour; the prothorax more deeply emarginate at apex, with more prominent and marked anterior angles, &c. In general appearance it greatly resembles *P. occidentalis*, Blkb., but differs by its larger head, the prothorax more deeply emarginate, less rounded on anterior part of sides, and with anterior angles decidedly advanced—not widely rounded. The ferruginous discoidal space on the elytra extends over the five inner interstices at the base, and becomes narrower backwards reaching nearly to the apex along the suture, its outer edges shading gradually into the surrounding piceous colour of the elytra.

123. *P. CONFERTUS*, Blkb.; l.c. Supp. Sp. 7265. *Hab.*—Swan River, Bunbury (Lea).

124. *P. ANGULATUS*, Chand.; l.c. Sp. 158. *Hab.*—Geraldton and Mullewa (Lea).

#### Genus HOMOTHES.

I am doubtful of the true position of the genus *Homothes*. Chaudoir in treating of it\* suggested that its place was near *Stenochila*, a genus which, according to Lacordaire's classification, belongs to the Odacanthides, but which Dr. G. H. Horn has referred to the Dryptini. As far as I can judge the affinities of *Homothes* are towards *Dromius*.

125. *H. GUTTIFER*, Germ.; l.c. Sp. 134. *Hab.*—Swan River (Lea).

126. *H. VICINUS*, n.sp.

Elongate; head oval; prothorax shagreened, canaliculate, subcordate, obliquely angustate to base; elytra oval, shoulders rounded. Black, subsericeous; mouth parts fuscous; antennæ infuscate; legs pale testaceous with apices of femora, tibiæ and joints of tarsi infuscate.

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\* Bull. Mosc., 1872, xlv., p. 388.

Prothorax hardly wider than head ( $1 \times 1.35$  mm.), widest considerably in front of middle; sides angulate at widest part, lightly obliquely narrowed to apex, obliquely (not roundly) narrowed to base, lightly sinuate before base; apex deeply truncate-emarginate; anterior angles prominent, obtuse; base truncate; basal angles rather obtuse. Elytra ovate ( $4.7 \times 2.6$  mm.), lightly rounded on sides, lightly striate; third interstice with five faint punctiform impressions; base lightly and semi-circularly emarginate behind peduncle.

Length 7.2, breadth 2.6 mm.

*Hab.*—Swan River, Donnybrook, Mount Barker (Lea).

This species is very closely allied to *H. parvicollis*, Blkb., of which it seems the western representative; but is a little smaller, with narrower elytra less rounded on the sides. *H. parvicollis* and *H. vicinus* seem to be separated from the other described species of *Homothus* by the shape of the prothorax (but I do not know *H. elegans*, Newm., and *H. sericeus*, Er.). All the other species known to me have the sides of the prothorax rounded behind the marginal seta and with a strong sharp sinuosity near the base which results in the prothorax having a basal lobe; in *H. parvicollis* and *H. vicinus* the sides are obliquely narrowed to the base, and the sinuosity before the base is so wide that the base is in no way lobate in the middle.

#### Genus DROMIUS.

127. *D. sp.?* A small black species represented by a single specimen in too imperfect a state to be dealt with satisfactorily.

*Hab.*—Bridgetown (Lea).

#### Genus NOTOTARUS.

128. *N. AUSTRALIS*, Chaud.; l.c. Sp. 130. *Hab.*—Swan River (Lea).

129. *N. CHAUDOIRI*, n sp.

Form light, depressed; head large, punctate, narrowed on each side behind eyes; prothorax subcordate, wider across apex than base, rugose-punctate near apex, base and sides, disc transversely striolate and minutely punctate; elytra ovate, emarginate at base

(each elytron obliquely subtruncate at apex), striate, a very short striae at base of first interstice; unguis simple. Opaque, brownish-black; elytra narrowly margined with brown, legs and basal joint of antennæ testaceous; antennæ and mouth-parts piceous-red.

Head large ( $1.25 \times 1.3$  mm.), convex; upper surface densely covered with a strong puncturation (the punctures separate); clypeus truncate, gently declivous, minutely punctate; eyes deeply set in orbits, convex, not prominent; postocular processes about two-thirds the size of eyes, roundly and strongly narrowed posteriorly. Prothorax a little wider than head, broader than long ( $1.25 \times 1.5$  mm.), convex, widest a little behind anterior angles, lightly narrowed to base; sides lightly rounded anteriorly, sinuate in front of posterior angles; apex emarginate-truncate; anterior angles rounded, not marked; posterior angles forming a short acute prominence; basal curve rounded above peduncle, widely and lightly sinuate behind posterior angles; lateral border narrow, strongly reflexed at posterior angles. Elytra widely oval ( $3.5 \times 2.4$  mm.), widest about posterior third, lightly and evenly convex; base deeply and roundly emarginate; sides rounded; shoulders rounded, advanced; external apical angles rounded; inner apical angle of each elytron widely rounded, not marked; striae lightly impressed, finely punctate; interstices finely shagreened, third bipunctate, ninth punctate—the punctures few and separate; lateral margins rather wide and depressed; border narrow, extending round humeral angles to base of first interstice, reflexed on anterior part of sides.

Length 6.5, breadth 2.4 mm.

*Hab.* —Beverley (Lea).

Differs from *N. australis*, Chaud., by having the head not strongly rugose; the prothorax narrower, not so strongly and closely rugose; the elytra not sericeous; the femora not piceous, &c.; from *N. interstitialis* it differs by its more rugose head, its longer and less convex elytra with the interstices not punctate, &c.

130. *N. INTERSTITIALIS*, n.sp.

Depressed; head large, rugulose-punctate; prothorax truncate-cordate, strongly transversely striolate on disc, rugulose-punctate

near margins; elytra short, truncate, strongly striate, interstices convex, minutely punctate. Opaque, piceous-black; elytra narrowly margined with brown; legs pale brown.

Head and prothorax as in *N. chaudiroides*, Sl., only the basal curve of prothorax shorter, the sinuosities behind the posterior angles more decided, and the base itself more truncate. Elytra short, truncate, widest behind middle ( $2.8 \times 2.3$  mm.), a little narrowed to base; sides rounded; humeral angles rounded; striae deeply impressed, minutely punctate; interstices convex, finely punctate on each side near striae—elytra in other respects agreeing with those of *N. chaudiroides*.

Length 5-6, breadth 2.2-3 mm.

*Hab.*—Geraldton and Mullewa (Lea).

Differs from *N. chaudiroides* by its shorter more depressed elytra, with the interstices finely punctate, &c.

#### Genus PENTAGONICA.

Baron Chaudoir, when treating of this genus, made the following note on its position:—"Je crois que M. Bates a été dans le vrai en les plaçant dans un groupe spécial sous le nom de *Pentagonicinae* (Trans. Ent. Soc. Lond. 1873, p. 320)."\* Commenting on this Dr. G. H. Horn says:—"This is certainly an easy settlement of the difficulty, more particularly as no characters are assigned to the group."†

131. *P. VITTIPENNIS*, Chaud.; l.c. Sp. 143. *Hab.*—Bridgetown (Lea).

#### Genus SCOPODES.

The genus *Scopodes* has been considered by the late H. W. Bates to form a distinct subfamily; and Chaudoir has made the following observation on the position of *Scopodes* and *Actenonyx*, a New Zealand genus:—"Ils doivent former un groupe à part voisin des *Lachnophorides*; . . . . toutefois je n'émetts encore cette opinion qu'avec doute."‡

\* Bull. Mosc. 1877, lii. p. 213.

† Trans. Am. Ent. Soc. 1881, ix. p. 159.

‡ Bull. Mosc. 1872, xlv. p. 392.

132. *S. ATERRIMUS*, Chaud., var. (?); l.c. Sp. 204. *Hab.*—Pinjarrah (Lea).

Two specimens of a species which offers but little difference from *S. aterrimus*, Chaud.; comparing it with specimens that seem typical of *S. aterrimus* the following differences are noted: size a little larger; prothorax wider and more strongly rugose; elytra wider, more widely rounded at shoulders, more opaque, less strongly striate. These differences may be sexual.

Length 5; prothorax  $0.8 \times 1.2$ ; elytra  $2.6 \times 2$  mm.

*Note.*—*S. aterrimus* is from S.W. Australia, according to Chaudoir, (my specimens are without locality). The nearly allied species found about Sydney seems a different species.

133. *S. BOOPS*, Erichs.; l.c. Sp. 206. *Hab.*—Swan River, Bridgetown (Lea).

134. *S. SIGILLATUS*, Germ.; l.c. Sp. 210. *Hab.*—Swan River, Rottnest Island, Beverley, Pinjarrah (Lea).

#### Tribe *HELLUONINI*.

##### Genus *GIGADEMA*.

135. *G. BOSTOCKI*, Casteln.; l.c. Sp. 78. *Hab.*—Geraldton and Mullewa (Lea).

#### Subfamily *PSEUDOMORPHINÆ*.

##### Tribe *PSEUDOMORPHINI*.

##### Genus *SILPHOMORPHA*.

136. *S. CASTELNAUI*, Reiche; l.c. Sp. 219. *Hab.*—Swan River (Lea).

##### Genus *ADELOTOPUS*.

137. *A. BREVIPENNIS*, MacL.; l.c. Supp. Sp. 7299. *Hab.*—Upper Ord River (Helms).

138. *A. DYTISCOIDES*, Newm.; l.c. Sp. 262. *Hab.*—Newcastle (Lea).

139. *A. OBSCURUS*, Casteln.; l.c. Sp. 273. *Hab.*—Upper Ord River (Helms).

140. *A. OCCIDENTALIS*, Casteln.; l.c. Sp. 274. *Hab.*—Mount Barker (Lea).



*Note on the Relationship of the Carabidæ of South-west Australia.*

The collecting of the Carabidæ of Australia has not been carried out with sufficient care to enable accurate and satisfactory conclusions to be formed as to their distribution; nor are published local lists of general completeness available, except Sir William Macleay's lists for the localities of Gayndah and King's Sound, both of which are deficient in classificatory exactness according to modern ideas. Consequently the data available for the study of the distribution of the Carabidæ in Australia are imperfect and faulty, but some general results may be obtained from an examination of the facts I have been able to bring together.

Insects extend back to such a remote geological period that their present distribution is of little value in establishing zoological regions, though, in some cases, it is useful as throwing additional light on theories in regard to the former dispersion of animals over the globe. Moreover the numbers of species and even of genera are so great that the examination and comparative consideration of them becomes wearisome and tedious to the reader. For the reasons stated my notes on the relationship of the Carabidæ of South-west Australia to those of other parts of the continent will be brief, and will in the main disregard species.

The term South-west Australia, as here intended, refers only to the extreme south-western corner of Australia from a little north of Swan River to King George's Sound; further, I confine my attention almost wholly to the Carabidæ sent by Mr. Lea from that area, because the recorded localities of the species formerly noted as from "West Australia" have in most cases merely a general significance. Also, in contrasting the Carabideous fauna of South-west Australia with that of other parts of Australia, instead of using Professor Spencer's Torresian and Bassian subregions, I shall adopt the term East Australian Slope for the united region, because our knowledge of the distribution of the Carabidæ of these subregions is insufficient to enable me to treat of them separately. The East Australian Slope I limit to the area between the summit of the dividing ranges of Eastern and

South-eastern Australia and the sea. I am also compelled by want of further knowledge to restrict the term "Eyrean Sub region" to that part of the continent west of the East Australian Slope and south of a line drawn from Bathurst, in New South Wales, to Alice Springs, and thence to Nickol Bay.

As far as I can judge from the data available, and working within the limitations laid down above, the Carabidæ of Australia in their distribution show a consonance with the rest of the fauna, and support the conclusions arrived at by Professor Spencer in his able summary of the distribution of the fauna of Australia.\*

Taking South-west Australia as here limited, the Carabidæ sent by Mr. Lea number 98 species, to which 10 previously described species may be added as definitely recorded as having been found within the area under consideration. These 108 species are comprised in 11† tribes and 48 genera; the total recorded numbers for Australia are 21 tribes, 160 genera, and about 1320 species. These figures show that the carabideous fauna of South-west Australia is poor in numbers—though doubtless it will be considerably augmented by future collecting.

I give below four tabulated lists of the number of genera in several divisions of Australia. These lists show their own results and there seems no reason to allude at all fully to them. The endemic Carabidæ of Australia comprise about 118 genera and 735 species. Tables III. and IV. give a comparison of the Carabidæ of South-west Australia with a part of New South Wales which may be looked upon as the extreme south-eastern part of the Eyrean Subregion, viz., an area extending from Mulwala (where the 146th parallel of E. longitude crosses the Murray River) to Junee—say a distance of 120 miles in a north-easterly direction; over this area I have collected for a number of years with considerable care.

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\* *Vide* Report of the Horn Scientific Expedition, Part I.; also P.L.S. N.S.W. 1897, xxii. p. 683, for a note by Mr. Fletcher on the Batrachia of South-west Australia.

† I expect that the following tribes not yet definitely recorded as occurring in the S.W. corner of Australia will be found there, viz., the Apotomini, Pogonini, Odacanthini, Dryptini, and Heliuonini.

TABLE I.—Comparative Table of Genera found in :—

	(a) EAST AUSTRALIAN SLOPE.			(b) EYREAN SUBREGION.			(c) SOUTH-WEST AUSTRALIA.		
	No. of genera in subregion.	Percentage of Aust. Total.	Percentage of Total in subregion.	No. of genera in subregion.	Percentage of Aust. Total.	Percentage of Total in subregion.	No. of genera in subregion.	Percentage of Aust. Total.	Percentage of Total in subregion.
	121	75	...	92	57	...	48	30	...
Genera common } to all subregions }	31	...	26	...	...	34	...	...	65
Genera peculiar } to each subregion }	37	23	30	17	10	18	3	2	6

TABLE II.—Comparative Table of endemic Australian Genera found in :—

	(a) EAST AUSTRALIAN SLOPE.			(b) EYREAN SUBREGION.			(c) SOUTH-WEST AUSTRALIA.		
	No. of genera in subregion.	Percentage of Aust. Total.	Percentage of Total in subregion.	No. of genera in subregion.	Percentage of Aust. Total.	Percentage of Total in subregion.	No. of genera in subregion.	Percentage of Aust. Total.	Percentage of Total in subregion.
	91	77	77	57	49	62	32	27	67
Genera common } to all subregions }	24	...	endemic 26	...	...	endemic 42	...	...	endemic 75
Genera peculiar } to each subregion }	37	...	endemic 40	19	...	endemic 33	2	...	endemic 6

TABLE III.  
Comparative Table of Genera and Species in South West Australia and Riverina.

	SOUTH-WEST AUSTRALIA.						RIVERINA.			
	GENERA.			SPECIES.			GENERA.		SPECIES.	
	No. in District.	Percentage of Australian Total.	Percentage of District Total.	No. in District.	Percentage of Australian Total.	Percentage of District Total.	No. in District.	Percentage of Australian Total.	Percentage of District Total.	Percentage of Australian District Total.
Genera common to both areas, with their number of species.	48	30	...	108	8	..	64	40	...	11
	35	...	73	82*	6	76	...	...	55	...
Genera found in one area, but not in the other, with their number of species.	13	...	27	26*	2	24	29	...	45	4
										35

\* These figures show merely the number of species in the genera in the same row immediately before them.

TABLE IV.  
Comparative Table of endemic Australian Genera (with their Species) in S.W. Australia and Riverina

	SOUTH-WEST AUSTRALIA.						RIVERINA.			
	GENERA.			SPECIES.			GENERA.		SPECIES.	
	No. in District.	Percentage of Australian Total (endemic).	Percentage of District Total.	No. in District.	Percentage of Australian Total (endemic).	Percentage of District Total.	No. in District.	Percentage of Australian Total (endemic).	No. in District.	Percentage of Australian Total (endemic).
	32	27	67	73	5.5	67	42	36	91	60
Genera common to both areas, with their number of species.	20	...	endemic 62	49*	...	67	...	...	49*	endemic 54
Genera found in one area, but not in the other, with number of species.	12	...	endemic 38	24*	...	33	22	...	42*	endemic 46

\* These figures show merely the number of species in the genera in the same row immediately before them.

The figures in the tables are approximate only, but as nearly accurate as the nature of the subject allows, and may, I believe, be accepted as substantially correct. It may be as well to note that nineteen species, belonging to eighteen genera, are found in both these areas, nine of which belong to nine endemic genera.

The conclusions deducible from the facts here presented are of a negative rather than a positive character, but the following seem worthy of being noted :—(1) The noticeable absence from South-west Australia of most of the Oriental types which are found in Eastern Australia ; (2) the great development of the Licinini (4 genera, 2 of which are peculiar); (3) the abundance of the Promecoderides, an Australian group characteristic of the Eyrean subregion (3 genera and 16 species in S.W. Australia against 1 genus [*Promecoderus*] with two widely distributed species in Riverina.)